LG

DK7711PM

MODEL

SERVICE MANUAL

SECTION 1

SUMMARY

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PRODUCT SAFETY SERVICING GUIDELINES FOR VIDEO PRODUCTS

CAUTION : DO NOT ATTEMPT TO MODIFY THIS PRODUCT IN ANY WAY, NEVER PERFORM CUSTOMIZED INSTALLATIONS WITHOUT MANUFACTURER'S APPROVAL. UNAUTHORIZED MODIFICATIONS WILL NOT ONLY VOID THE WARRANTY, BUT MAY LEAD TO YOUR BEING LIABLE FOR ANY RESULTING PROPERTY DAMAGE OR USER INJURY.

SERVICE WORK SHOULD BE PERFORMED ONLY AFTER YOU ARE THOROUGHLY FAMILIAR WITH ALL OF THE FOLLOWING SAFETY CHECKS AND SERVICING GUIDELINES. TO DO OTHERWISE, INCREASES THE RISK OF POTENTIAL HAZARDS AND INJURY TO THE USER.

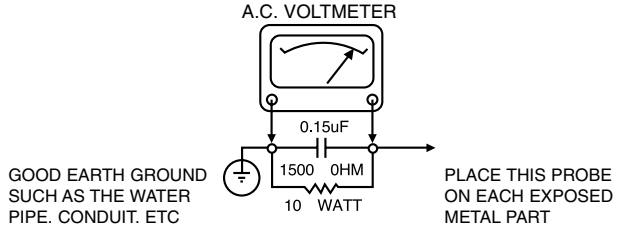
WHILE SERVICING, USE AN ISOLATION TRANSFORMER FOR PROTECTION FROM A.C. LINE SHOCK.

SAFETY CHECKS

AFTER THE ORIGINAL SERVICE PROBLEM HAS BEEN CORRCTED. A CHECK SHOULD BE MADE OF THE FOLLOWING.

SUBJECT : FIRE & SHOCK HAZARD

1. BE SURE THAT ALL COMPONENTS ARE POSITIONED IN SUCH A WAY AS TO AVOID POSSIBILITY OF ADJACENT COMPONENT SHORTS. THIS IS ESPECIALLY IMPORTANT ON THOSE MODULES WHICH ARE TRANSPORTED TO AND FROM THE REPAIR SHOP.
2. NEVER RELEASE A REPAIR UNLESS ALL PROTECTIVE DEVICES SUCH AS INSULATORS, BARRIERS, COVERS, SHIELDS, STRAIN RELIEFS, POWER SUPPLY CORDS, AND OTHER HARDWARE HAVE BEEN REINSTALLED PER ORIGINAL DESIGN. BE SURE THAT THE SAFETY PURPOSE OF THE POLARIZED LINE PLUG HAS NOT BEEN DEFEATED.
3. SOLDERING MUST BE INSPECTED TO DISCOVER POSSIBLE COLD SOLDER JOINTS, SOLDER SPLASHES OR SHARP SOLDER POINTS. BE CERTAIN TO REMOVE ALL LOOSE FOREIGN PARTICLES.
4. CHECK FOR PHYSICAL EVIDENCE OF DAMAGE OR DETERIORATION TO PARTS AND COMPONENTS. FOR FRAYED LEADS, DAMAGED INSULATION (INCLUDING A.C. CORD). AND REPLACE IF NECESSARY FOLLOW ORIGINAL LAYOUT, LEAD LENGTH AND DRESS.
5. NO LEAD OR COMPONENT SHOULD TOUCH A RECIVING TUBE OR A RESISTOR RATED AT 1 WATT OR MORE. LEAD TENSION AROUND PROTRUNING METAL SURFACES MUST BE AVOIDED.
6. ALL CRITICAL COMPONENTS SUCH AS FUSES, FLAMEPROOF RESISTORS, CAPACITORS, ETC. MUST BE REPLACED WITH EXACT FACTORY TYPES, DO NOT USE REPLACEMENT COMPONENTS OTHER THAN THOSE SPECIFIED OR MAKE UNRECOMMENDED CIRCUIT MODIFICATIONS.
7. AFTER RE-ASSEMBLY OF THE SET ALWAYS PERFORM AN A.C. LEAKAGE TEST ON ALL EXPOSED METALLIC PARTS OF THE CABINET, (THE CHANNEL SELECTOR KNOB, ANTENNA TERMINALS. HANDLE AND SCREWS) TO BE SURE THE SET IS SAFE TO OPERATE WITHOUT DANGER OF ELECTRICAL SHOCK. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST USE AN A.C. VOLTMETER, HAVING 5000 OHMS PER VOLT OR MORE SENSITIVITY, IN THE FOLLOWING MANNER; CONNECT A 1500 OHM 10 WATT RESISTOR, PARALLELED BY A .15 MFD. 150.V A.C TYPE CAPACITOR BETWEEN A KNOWN GOOD EARTH GROUND (WATER PIPE, CONDUIT, ETC.) AND THE EXPOSED METALLIC PARTS, ONE AT A TIME. MEASURE THE A.C. VOLTAGE ACROSS THE COMBINATION OF 1500 OHM RESISTOR AND .15 MFD CAPACITOR. REVERSE THE A.C. PLUG AND REPEAT A.C. VOLTAGE MEASUREMENTS FOR EACH EXPOSED METALLIC PART. VOLTAGE MEASURED MUST NOT EXCEED 75 VOLTS R.M.S. THIS CORRESPONDS TO 0.5 MILLIAMP A.C ANY VALUE EXCEEDING THIS LIMIT CONSTITUTES A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED IMMEDIATELY.


A.C. VOLTMETER
0.15uF
1500 0HM
10 WATT
GOOD EARTH GROUND SUCH AS THE WATER PIPE. CONDUIT. ETC
PLACE THIS PROBE ON EACH EXPOSED METAL PART

SUBJECT: GRAPHIC SYMBOLS

THE LIGHTNING FLASH WITH APROWHEAD SYMBOL. WITHIN AN EQUILATERAL TRIANGLE, IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF UNINSULATED "DANGEROUS VOLTAGE" THAT MAY BE OF SUFFICIENT MAGNITUDE TO CONSTITUTE A RISK OF ELECTRIC SHOCK.

THE EXCLAMATION POINT WITHIN AN EQUILATERAL TRIANGLE IS INTENDED TO ALERT THE SERVICE PERSONNEL TO THE PRESENCE OF IMPORTANT SAFETY INFORMATION IN SERVICE LITERATURE.

SUBJECT : X-RADIATION

1. BE SURE PROCEDURES AND INSTRUCTIONS TO ALL SERVICE PERSONNEL COVER THE SUBJECT OF X-RADIATION. THE ONLY POTENTIAL SOURCE OF X-RAYS IN CURRENT T.V. RECEIVERS IS THE PICTURE TUBE. HOWEVER, THIS TUBE DOES NOT EMIT X-RAYS WHEN THE HIGH VOLTAGE IS AT THE FACTORY SPECIFIED LEVEL. THE PROPER VALUE IS GIVEN IN THE APPLICABLE SCHEMATIC. OPERATION AT HIGHER VOLTAGES MAY CAUSE A FAILURE OF THE PICTURE TUBE OR HIGH VOLTAGE SUPPLY AND, UNDER CERTAIN CIRCUMSTANCES, MAY PRODUCE RADIATION IN EXCESS OF DESIRABLE LEVELS.
2. ONLY FACTORY SPECIFIED C.R.T. ANODE CONNECTORS MUST BE USED. DEGAUSSING SHIELDS ALSO SERVE AS X-RAY SHIELD IN COLOR SETS, ALWAYS RE-INSTALL THEM.
3. IT IS ESSNTIAL THAT SERVICE PERSONNEL HAVE AVAILABLE AN ACCURATE AND RELIABLE HIGH VOLTAGE METER. THE CALIBRA TION OF THE METER SHOULD BE CHECKED PERIODICALLY AGAINST A REFERENCE STANDARD, SUCH AS THE ONE AVAILABLE AT YOUR DISTRIBUTOR.
4. WHEN THE HIGH VOLTAGE CIRCUITRY IS OPERATING PROPERLY THERE IS NO POSSIBILITY OF AN X-RADIATION PROBLEM. EVERY TIME A COLOR CHASSIS IS SERVICED. THE BRIGHTNESS SHOULD BE RUN UP AND DOWN WHILE MONITORING THE HIGH VOLTAGE WITH A METER TO BE CERTAIN THAT THE HIGH VOLTAGE DOES NOT EXCEED THE SPECIFIED VALUE AND THAT IT IS REGULATING CORRECTLY, WE SUGGEST THAT YOU AND YOUR SERVICE ORGANIZATION REVIEW TEST PROCEDURES SO THAT VOLTAGE REGULATION IS ALWAYS CHECKED AS A STANDARD SERVICING PROCEDURE. AND THAT THE HIGH VOLTAGE READING BE RECORDER ON EACH CUSTOMER'S INVOICE.
5. WHEN TROUBLESHOOTING AND MAKING TEST MEASUREMENTS IN A PRODUCT WITH A PROBLEM OF EXCESSIVE HIGH VOLTAGE, AVOID BEING UNNECESSARILY CLOSE TO THE PICTURE TUBE AND THE HIGH VOLTAGE SUPPLY. DO NOT OPERATE THE PRODUCT LONGER THAN IS NECESSARY TO LOCATE THE CAUSE OF EXCES SIVE VOLTAGE.
6. REFER TO HV. B+ AND SHUTDOWN ADJUSTMENT PROCEDURES DESCRIBED IN THE APPROPRIATE SCHEMATIC AND DIAGRAMS (WHERE USED).

SUBJECT: IMPLOSION

1. ALL DIRECT VIEWED PICTURE TUBES ARE EQUIPPED WITH AN INTE GRAL IMPLOSION PROTECTION SYSTEM, BUT CARE SHOULD BE TAKEN TO AVOID DAMAGE DURING INSTALLATION, AVOID SCRATCHING THE TUBE. IF SCRATCHED REPLACE IT.
2. USE ONLY RECOMMENDED FACTORY REPLACEMENT TUBES.

SUBJECT : TIPS ON PROPER INSTALLATION

1. NEVER INSTALL ANY PRODUCT IN A CLOSED-IN RECESS, CUBBYHOLE OR CLOSELY FITTING SHELF SPACE. OVER OR CLOSE TO HEAT DUCT, OR IN THE PATH OF HEATED AIR FLOW.
2. AVOID CONDITIONS OF HIGH HUMIDITY SUCH AS: OUTDOOR PATIO INSTALLATIONS WHERE DEW IS A FACTOR, NEAR STEAM RADIATORS WHERE STEAM LEAKAGE IS A FACTOR, ETC.
3. AVOID PALCEMENT WHERE DRAPERIES MAY OBSTRUCT REAR VENTING. THE CUSTOMER SHOULD ALSO AVOID THE USE OF DECORATIVE SCARVES OR OTHER COVERINGS WHICH MIGHT OBSTRUCT VENTILATION.
4. WALL AND SHELF MOUNTED INSTALLATIONS USING A COMMERCIAL MOUNTING KIT. MUST FOLLOW THE FACTORY APPROVED MOUNTING INSTRUCTIONS A PRODUCT MOUNTED TO A SHELF OR PLATFORM MUST RETAIN ITS ORIGINAL FEET (OR THE EQUIVALENT THICKNESS IN SPACERS) TO PROVIDE ADEQUATE AIR FLOW ACROSS THE BOTTOM, BOLTS OR SCREWS USED FOR FASTENERS MUST NOT TOUCH ANY PARTS OR WIRING. PERFORM LEAKAGE TEST ON CUSTOMIZED INSTALLATIONS.
5. CAUTION CUSTOMERS AGAINST THE MOUNTING OF A PRODUCT ON SLOPING SHELF OR A TILTED POSITION, UNLESS THE PRODUCT IS PROPERLY SECURED.
6. A PRODUCT ON A ROLL-ABOUT CART SHOULD BE STABLE ON ITS MOUNTING TO THE CART. CAUTION THE CUSTOMER ON THE HAZARDS OF TRYING TO ROLL A CART WITH SMALL CASTERS ACROSS THRESHOLDS OR DEEP PILE CARPETS.
7. CAUTION CUSTOMERS AGAINST THE USE OF A CART OR STAND WHICH HAS NOT BEEN LISTED BY UNDERWRITERS LABORATORIES, INC. FOR USE WITH THEIR SPECIFIC MODEL OF TELEVISION RECEIVER OR GENERICALLY APPROVED FOR USE WITH T.V.'S OF THE SAME OR LARGER SCREEN SIZE.
8. CAUTION CUSTOMERS AGAINST THE USE OF EXTENSION CORDS, EXPLAIN THAT A FOREST OF EXTENSIONS SPROUTING FROM A SINGLE OUTLET CAN LEAD TO DISASTROUS CONSEQUENCES TO HOME AND FAMILY.

SERVICING PRECAUTIONS

CAUTION : Before servicing the DVD covered by this service data and its supplements and addends, read and follow the *SAFETY PRECAUTIONS. NOTE* : if unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions in this publications, always follow the safety precautions.
Remembers Safety First:

General Servicing Precautions

1. Always unplug the DVD AC power cord from the AC power source before:
   (1) Removing or reinstalling any component, circuit board, module, or any other assembly.
   (2) Disconnection or reconnecting any internal electrical plug or other electrical connection.
   (3) Connecting a test substitute in parallel with an electrolytic capacitor.
   Caution : A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Do not spray chemicals on or near this DVD or any of its assemblies.

3. Unless specified otherwise in this service data, clean electrical contacts by applying an appropriate contact cleaning solution to the contacts with a pipe cleaner, cotton-tipped swab, or comparable soft applicator.
   Unless specified otherwise in this service data, lubrication of contacts is not required.

4. Do not defeat any plug/socket B+ voltage interlocks with whitch instruments covered by this service manual might be equipped.

5. Do not apply AC power to this DVD and/or any of its electrical assemblies unless all solid-state device heat sinks are cerrectly installed.

6. Always connect test instrument ground lead to the appropriate ground before connection the test instrument positive lead. Always remove the test instrument ground lead last.

Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power on. Connect an insulation resistance meter(500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (Note 1) should be more than 1M-ohm.

Note 1 : Accessible Conductive Parts including Metal panels, Input terminals, Earphone jacks, etc.

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor chip components.
The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grouned-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified a “anti-static” can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charge sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protec tive package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Normally harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

SECTION 2

CABINET & MAIN CHASSIS

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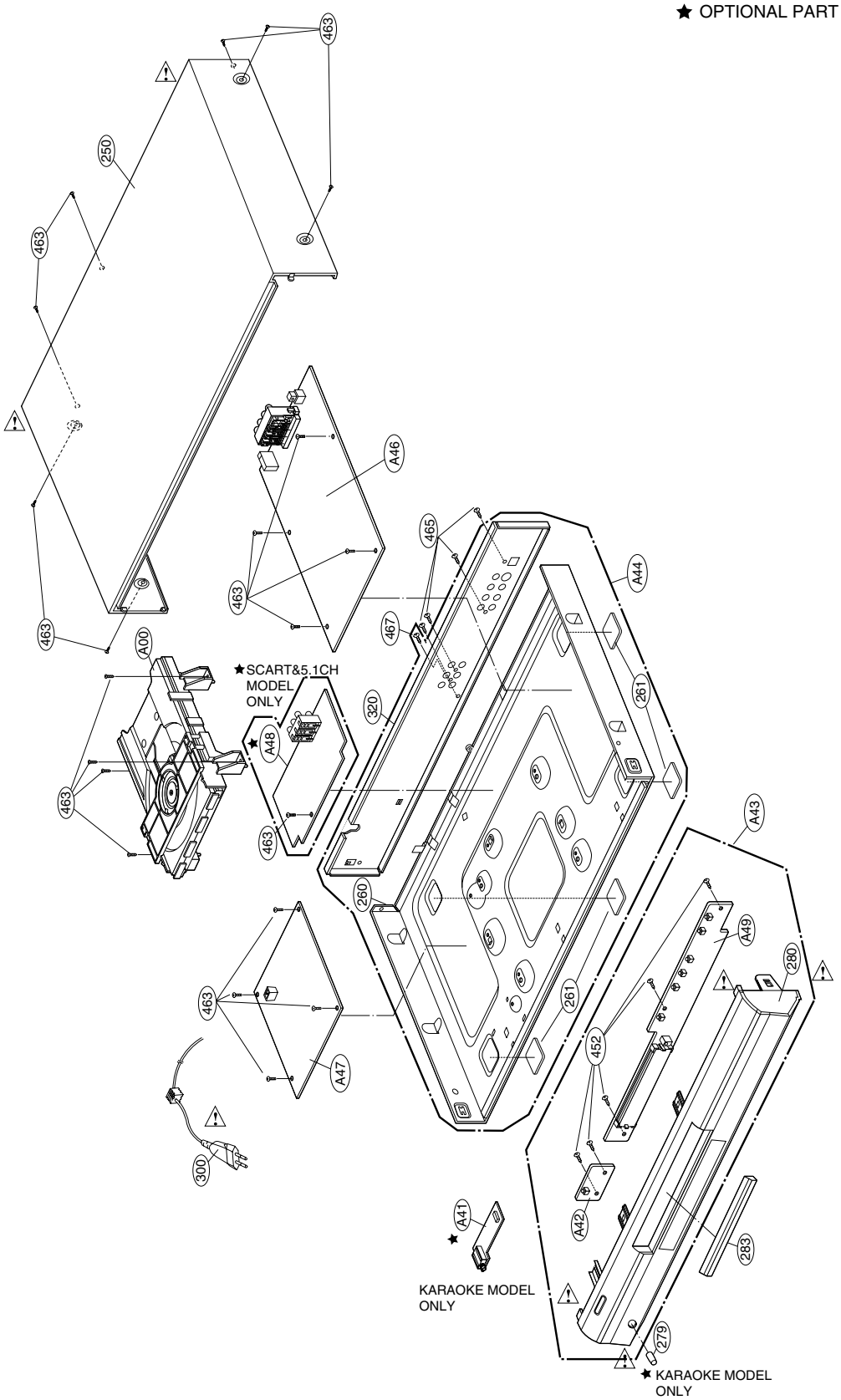
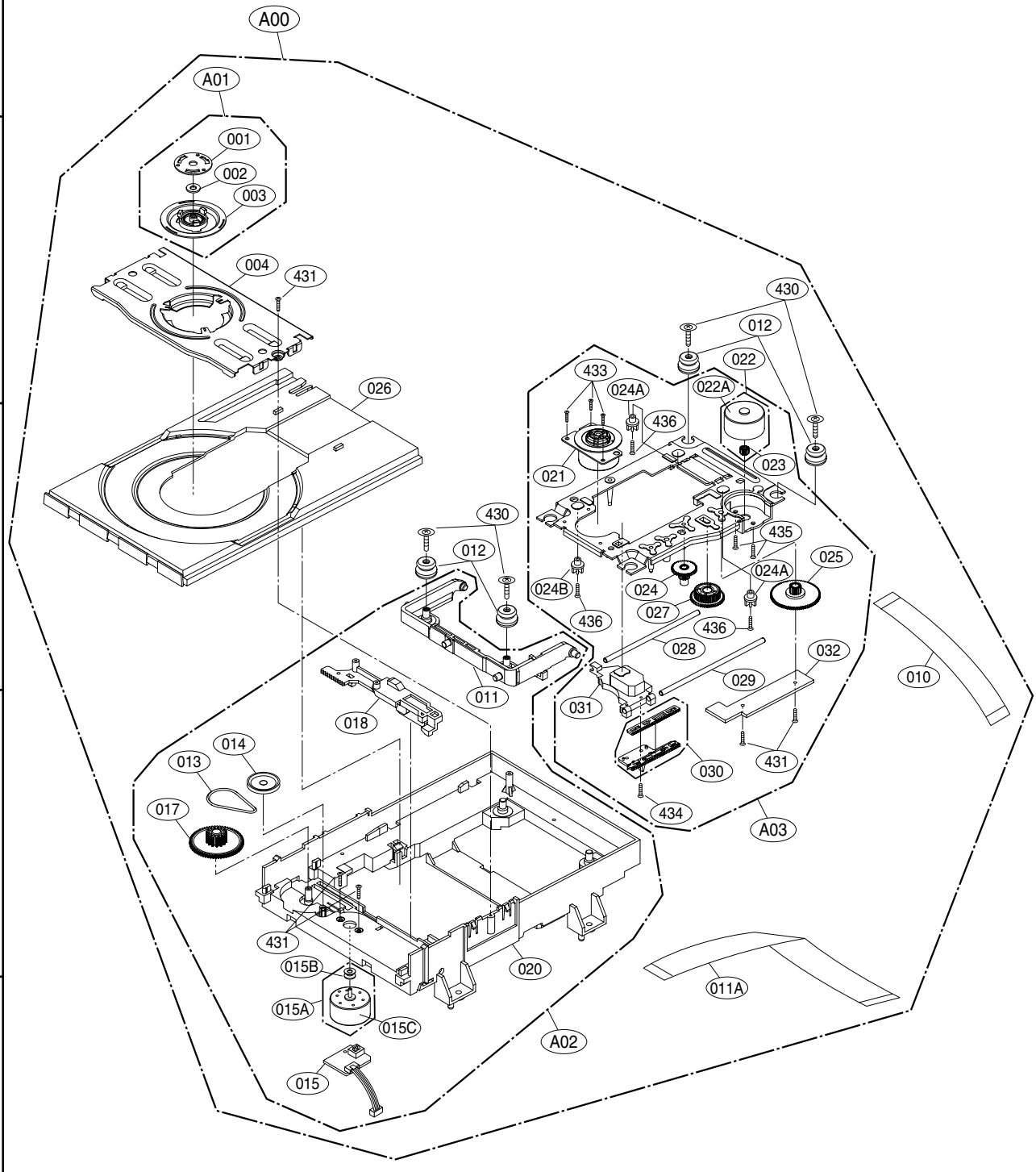
EXPLODED VIEWS

1. Cabinet and Main Frame Section

★ OPTIONAL PART

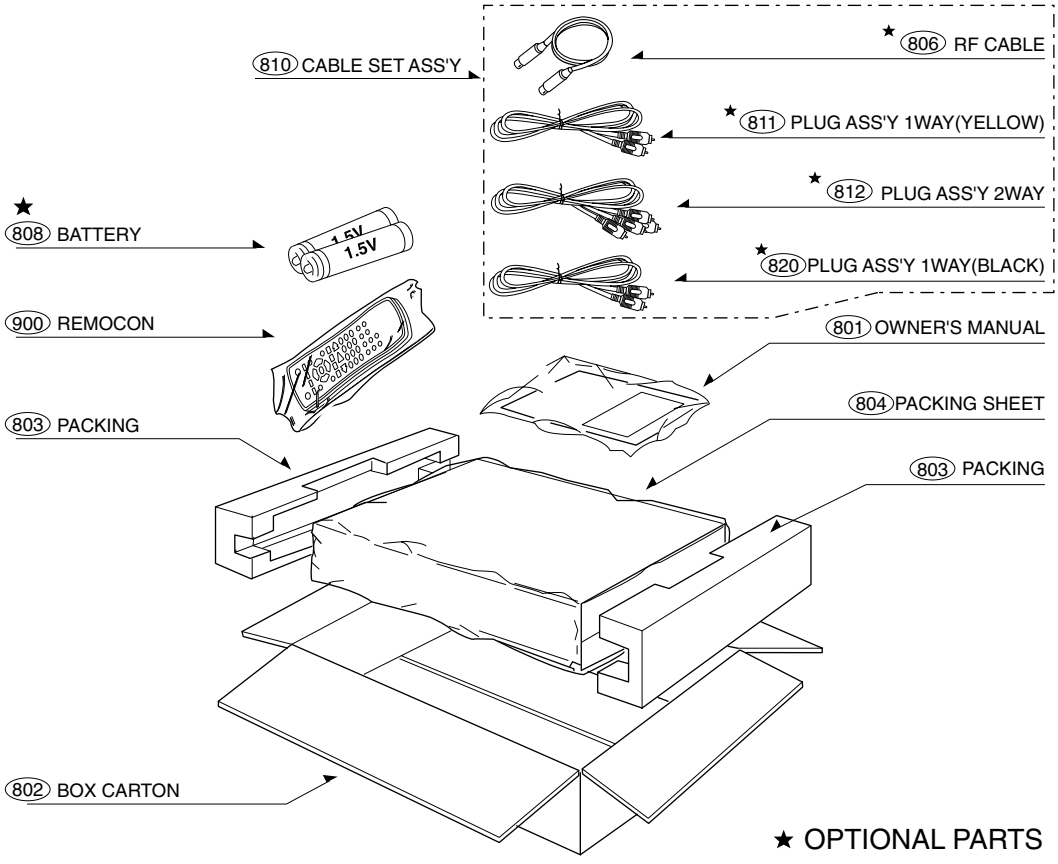


2. Deck Mechanism Section



A | B | C | D

3. Packing Accessory Section



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ELECTRICAL

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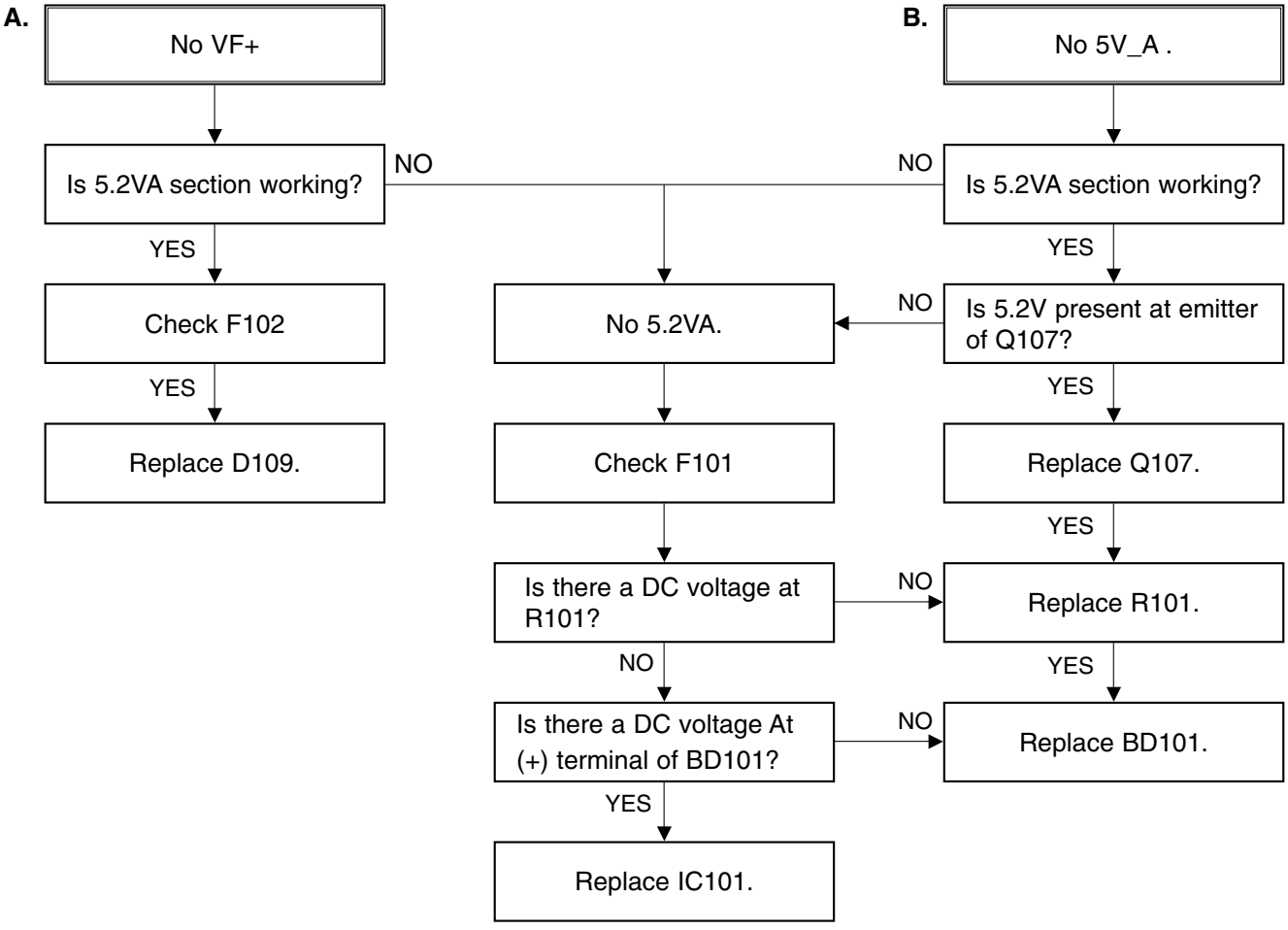
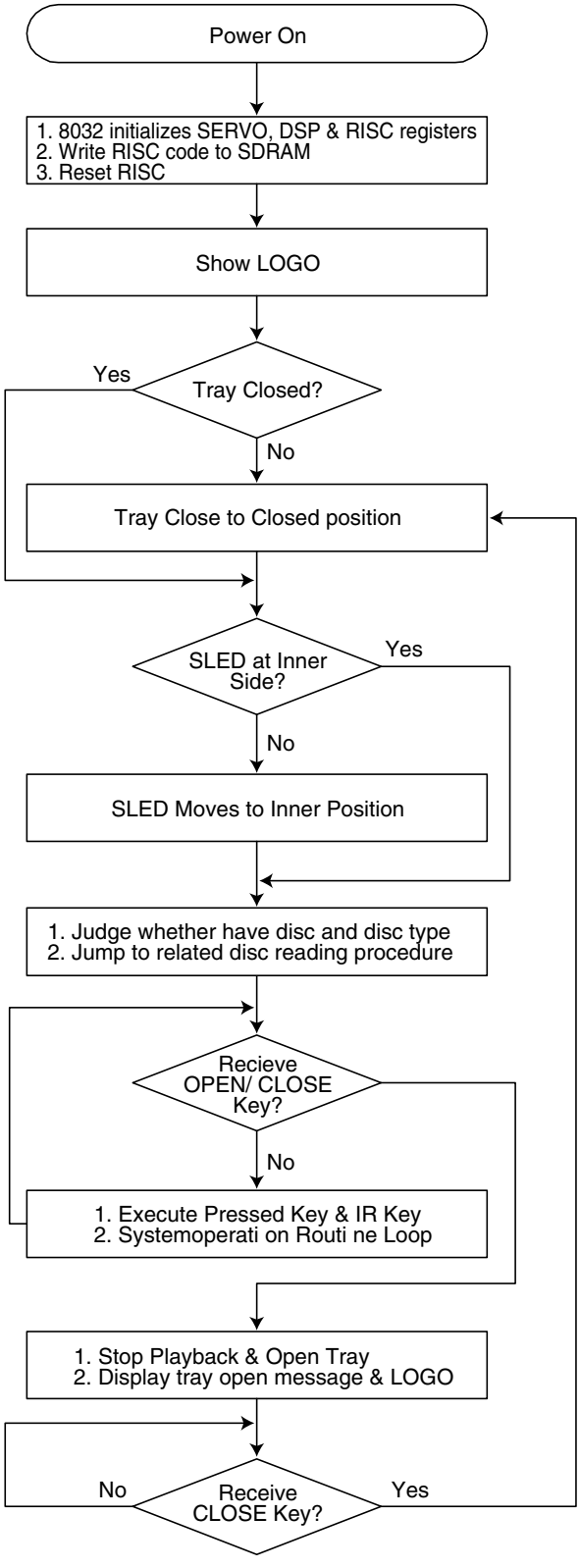
ELECTRICAL TROUBLESHOOTING GUIDE

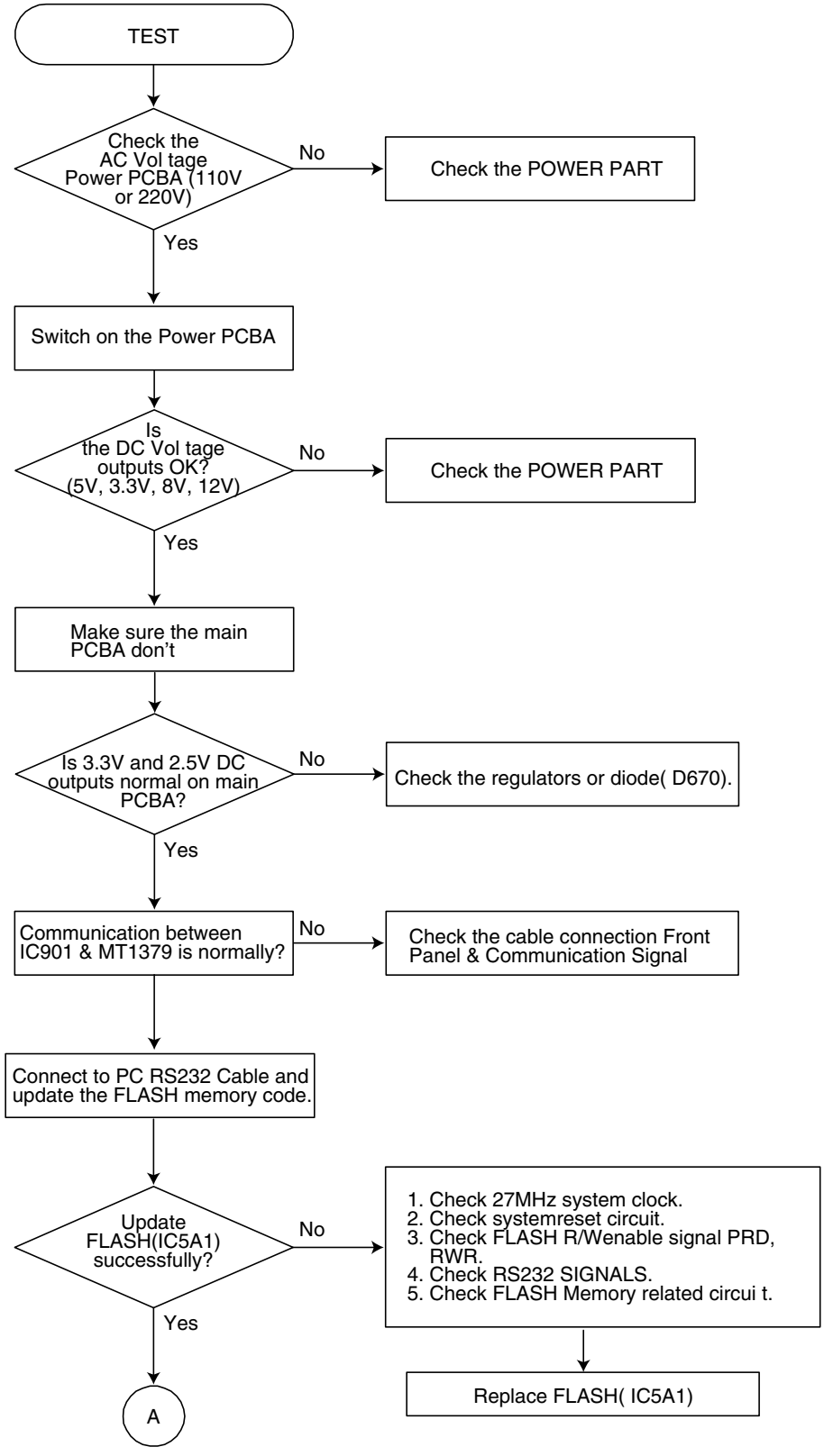
1. Power check flow

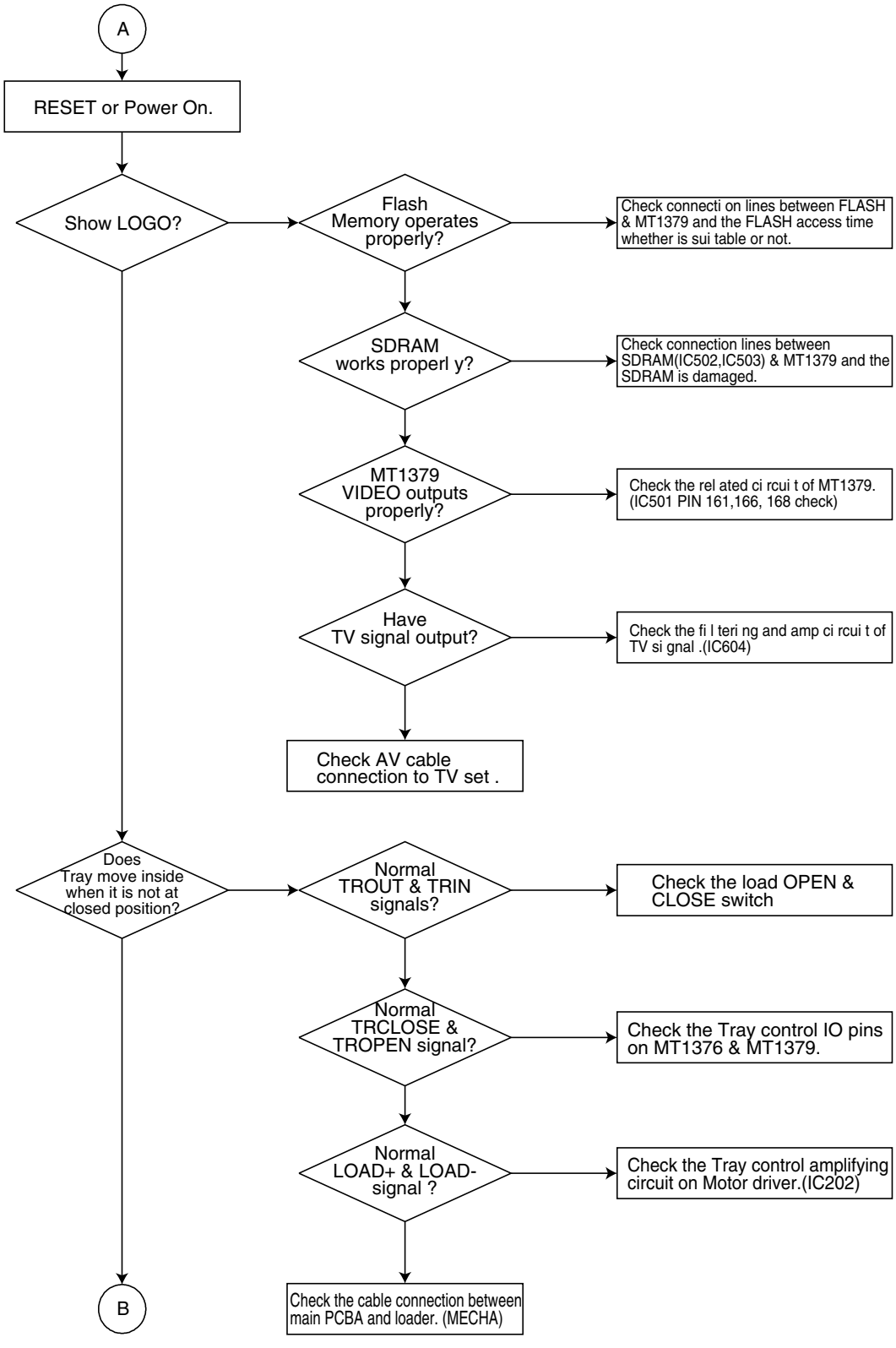


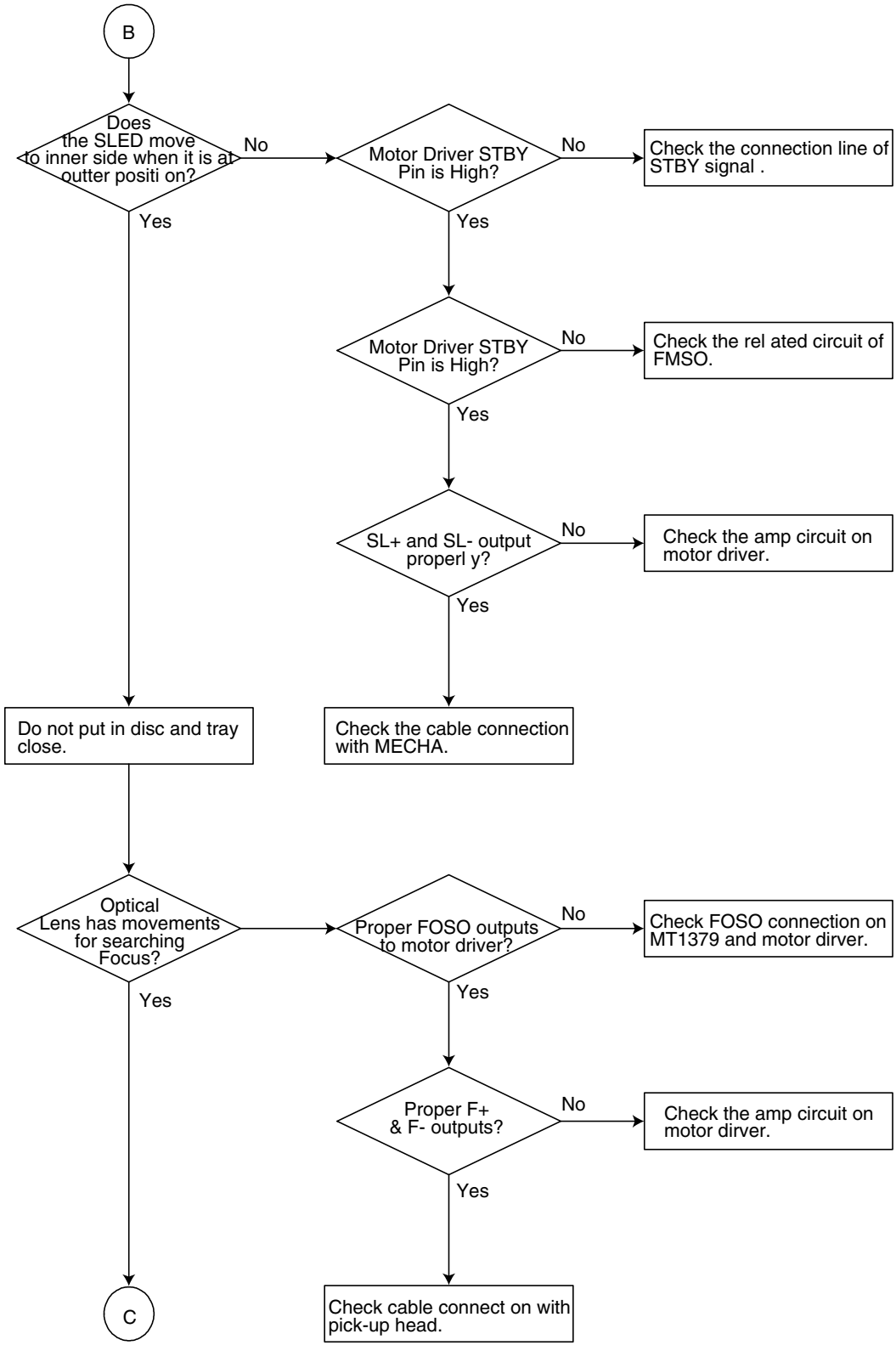
2. System operation flow

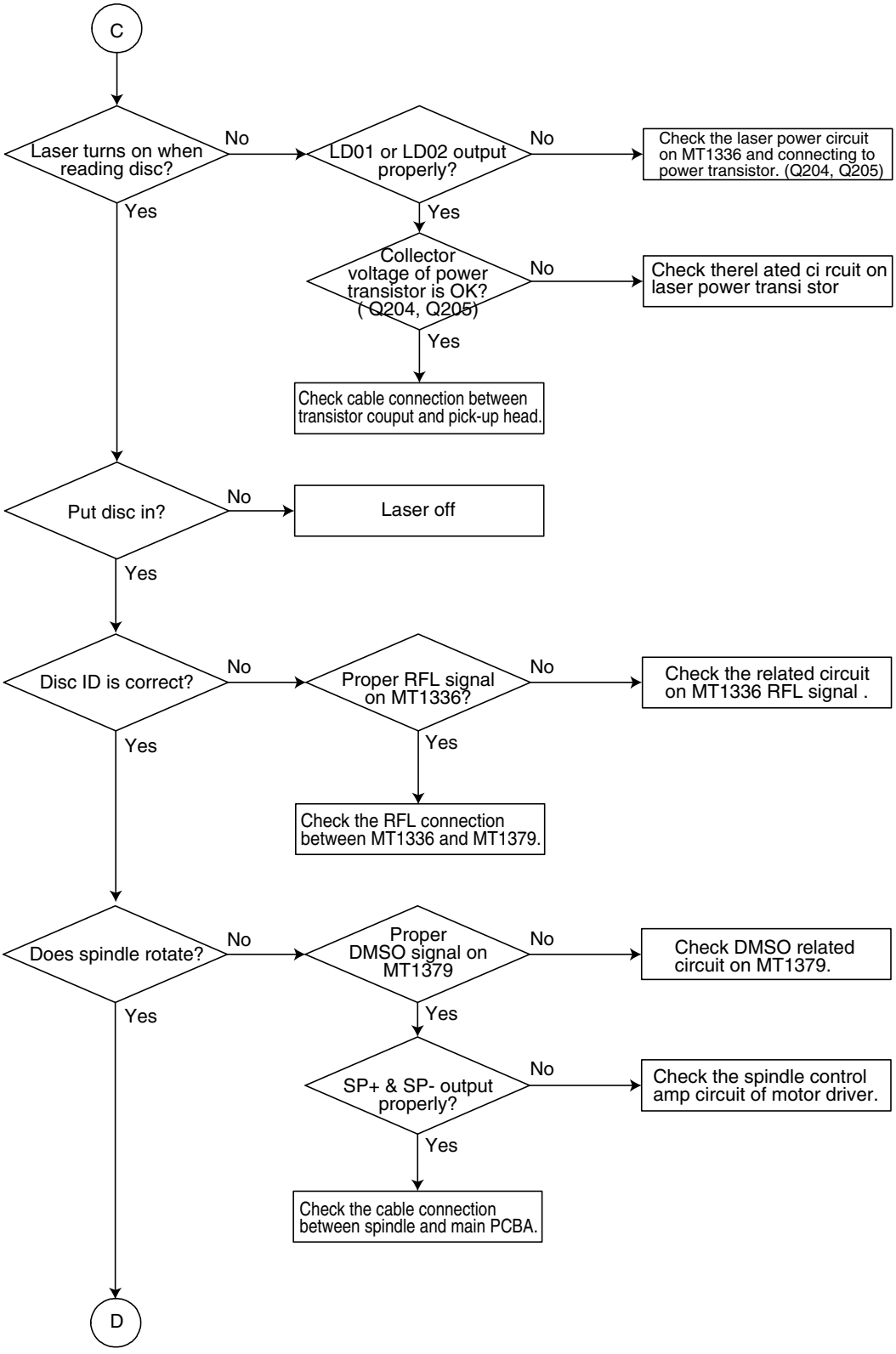


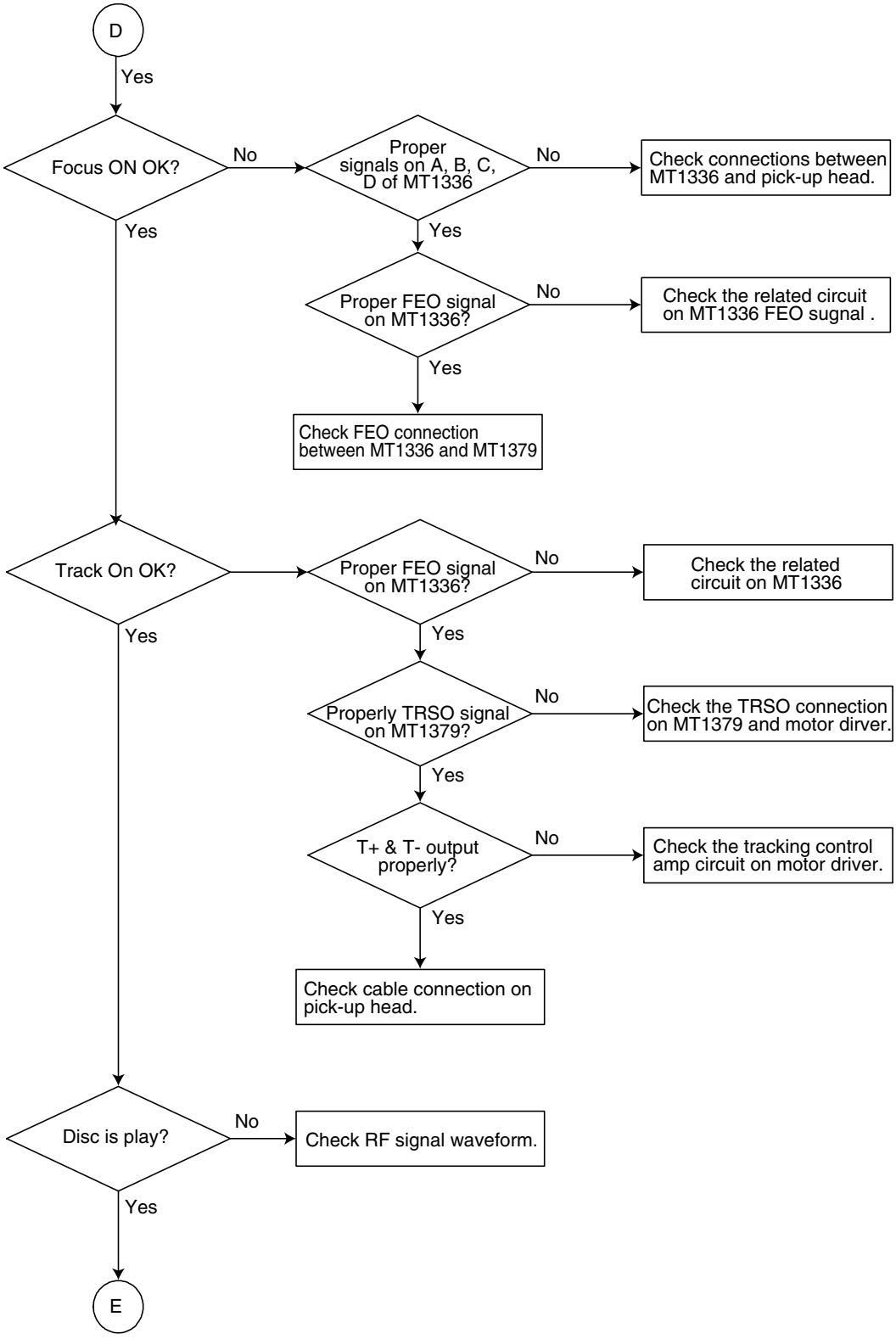
3. Test & debug flow

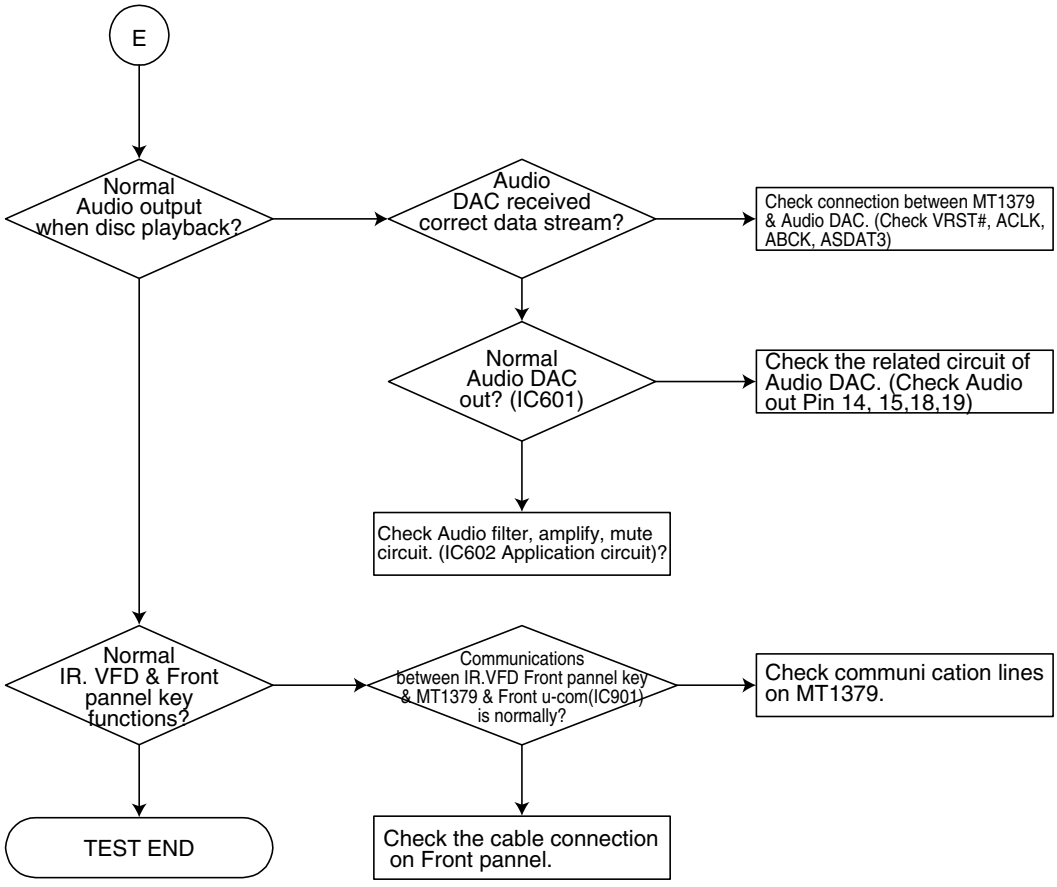

TEST
Check the AC Vol tage Power PCBA (110V or 220V)
No
Check the POWER PART
Yes
Switch on the Power PCBA
Is the DC Vol tage outputs OK? (5V, 3.3V, 8V, 12V)
No
Check the POWER PART
Yes
Make sure the main PCBA don't
Is 3.3V and 2.5V DC outputs normal on main PCBA?
No
Check the regulators or diode(D670).
Yes
Communication between IC901 & MT1379 is normally?
No
Check the cable connection Front Panel & Communication Signal
Connect to PC RS232 Cable and update the FLASH memory code.
Update FLASH(IC5A1) successfully?
No
1. Check 27MHz system clock.
2. Check systemreset circuit.
3. Check FLASH R/Wenable signal PRD, RWR.
4. Check RS232 SIGNALS.
5. Check FLASH Memory related circui t.
Replace FLASH(IC5A1)
Yes
A


A
RESET or Power On.
Show LOGO?
Flash Memory operates properly?
Check connecti on lines between FLASH & MT1379 and the FLASH access time whether is sui table or not.
SDRAM works properl y?
Check connection lines between SDRAM(IC502,IC503) & MT1379 and the SDRAM is damaged.
MT1379 VIDEO outputs properly?
Check the rel ated ci rcui t of MT1379. (IC501 PIN 161,166, 168 check)
Have TV signal output?
Check the fi l teri ng and amp ci rcui t of TV si gnal .(IC604)
Check AV cable connection to TV set .
Does Tray move inside when it is not at closed position?
Normal TROUT & TRIN signals?
Check the load OPEN & CLOSE switch
Normal TRCLOSE & TROPEN signal?
Check the Tray control IO pins on MT1376 & MT1379.
Normal LOAD+ & LOAD- signal ?
Check the Tray control amplifying circuit on Motor driver.(IC202)
Check the cable connection between main PCBA and loader. (MECHA)
B

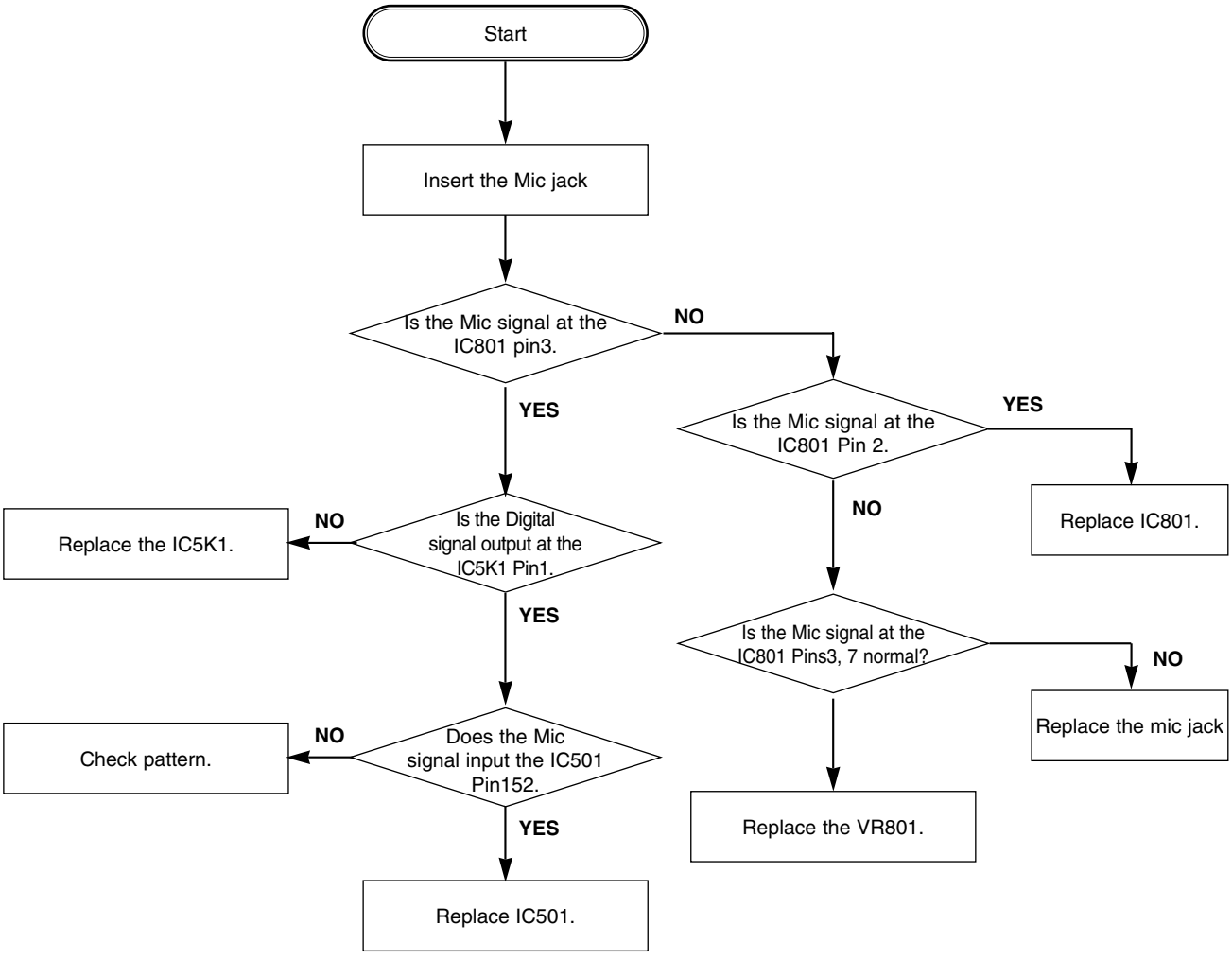

B
Does the SLED move to inner side when it is at outter positi on?
No
Yes
Motor Driver STBY Pin is High?
No
Check the connection line of STBY signal .
Yes
Motor Driver STBY Pin is High?
No
Check the rel ated circuit of FMSO.
Yes
SL+ and SL- output properl y?
No
Check the amp circuit on motor driver.
Yes
Do not put in disc and tray close.
Check the cable connection with MECHA.
Optical Lens has movements for searching Focus?
Proper FOSO outputs to motor driver?
No
Check FOSO connection on MT1379 and motor dirver.
Yes
Yes
Proper F+ & F- outputs?
No
Check the amp circuit on motor dirver.
Yes
C
Check cable connect on with pick-up head.


C
Laser turns on when reading disc?
No
LD01 or LD02 output properly?
No
Check the laser power circuit on MT1336 and connecting to power transistor. (Q204, Q205)
Yes
Yes
Collector voltage of power transistor is OK? (Q204, Q205)
No
Check therel ated ci rcuit on laser power transi stor
Yes
Check cable connection between transistor couput and pick-up head.
Put disc in?
No
Laser off
Yes
Disc ID is correct?
No
Proper RFL signal on MT1336?
No
Check the related circuit on MT1336 RFL signal .
Yes
Yes
Check the RFL connection between MT1336 and MT1379.
Does spindle rotate?
No
Proper DMSO signal on MT1379
No
Check DMSO related circuit on MT1379.
Yes
Yes
SP+ & SP- output properly?
No
Check the spindle control amp circuit of motor driver.
Yes
Check the cable connection between spindle and main PCBA.
D


D
Yes
Focus ON OK?
No
Proper signals on A, B, C, D of MT1336
No
Check connections between MT1336 and pick-up head.
Yes
Yes
Proper FEO signal on MT1336?
No
Check the related circuit on MT1336 FEO sugnal .
Yes
Check FEO connection between MT1336 and MT1379
Track On OK?
Proper FEO signal on MT1336?
No
Check the related circuit on MT1336
Yes
Yes
Properly TRSO signal on MT1379?
No
Check the TRSO connection on MT1379 and motor dirver.
Yes
T+ & T- output properly?
No
Check the tracking control amp circuit on motor driver.
Yes
Check cable connection on pick-up head.
Disc is play?
No
Check RF signal waveform.
Yes
E


E
Normal Audio output when disc playback?
Audio DAC received correct data stream?
Check connection between MT1379 & Audio DAC. (Check VRST#, ACLK, ABCK, ASDAT3)
Normal Audio DAC out? (IC601)
Check the related circuit of Audio DAC. (Check Audio out Pin 14, 15,18,19)
Check Audio filter, amplify, mute circuit. (IC602 Application circuit)?
Normal IR. VFD & Front pannel key functions?
Communications between IR.VFD Front pannel key & MT1379 & Front u-com(IC901) is normally?
Check communi cation lines on MT1379.
TEST END
Check the cable connection on Front pannel.

4. KARAOKE Flow (KARAOKE MODEL ONLY)



DETAILS AND WAVEFORMS ON SYSTEM TEST AND DEBUGGING

1. SYSTEM 27MHz CLOCK,RESET,FLASH R/W SIGNAL

1) MT1379 main clock is at 27MHz(X501)

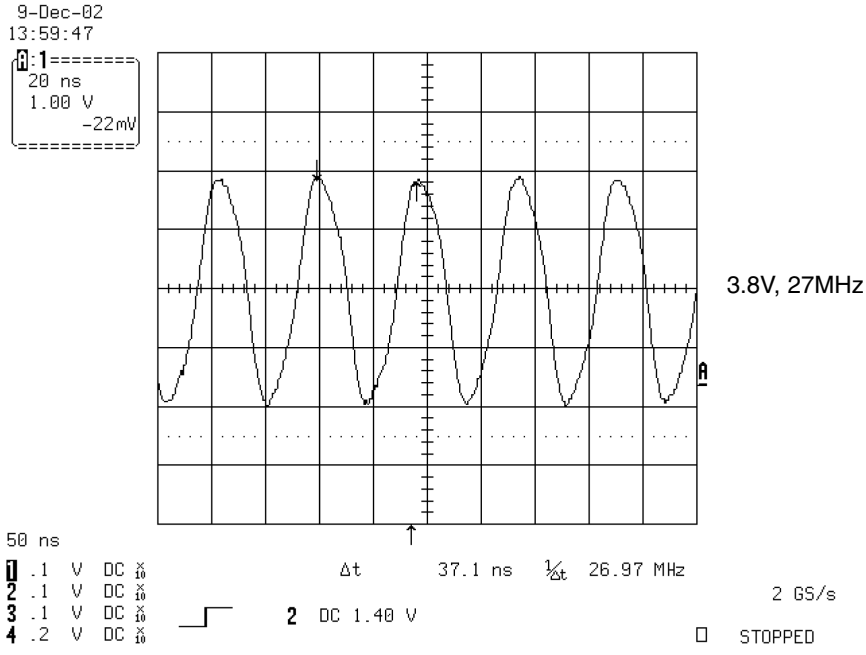


FIG 1-1

2) MT1379 & MT1336 reset is high active.

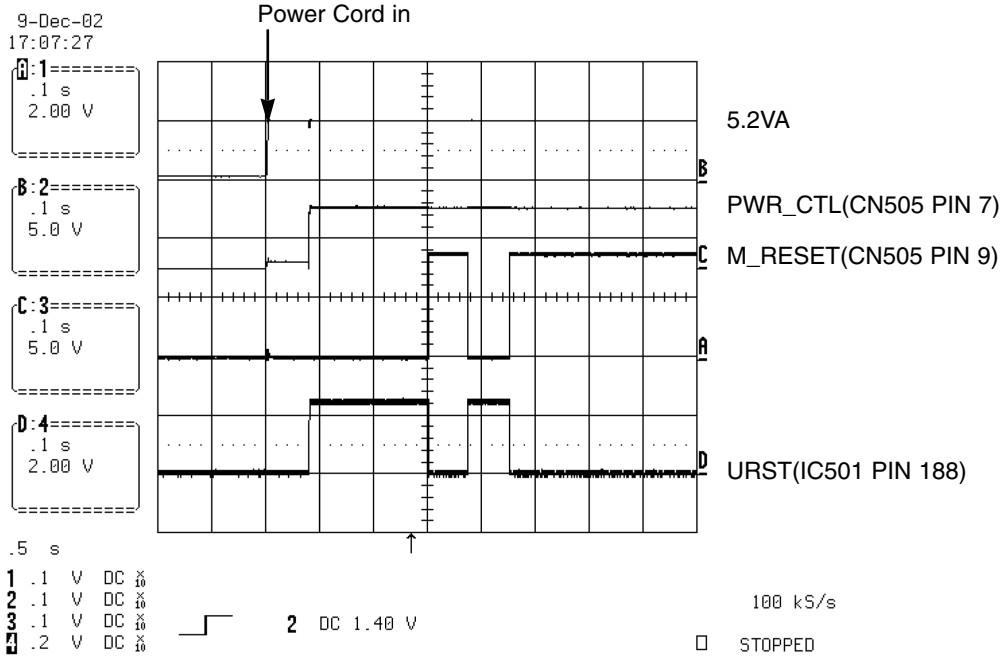


FIG 1-2

3) RS232 waveform during procedure(Downloading)

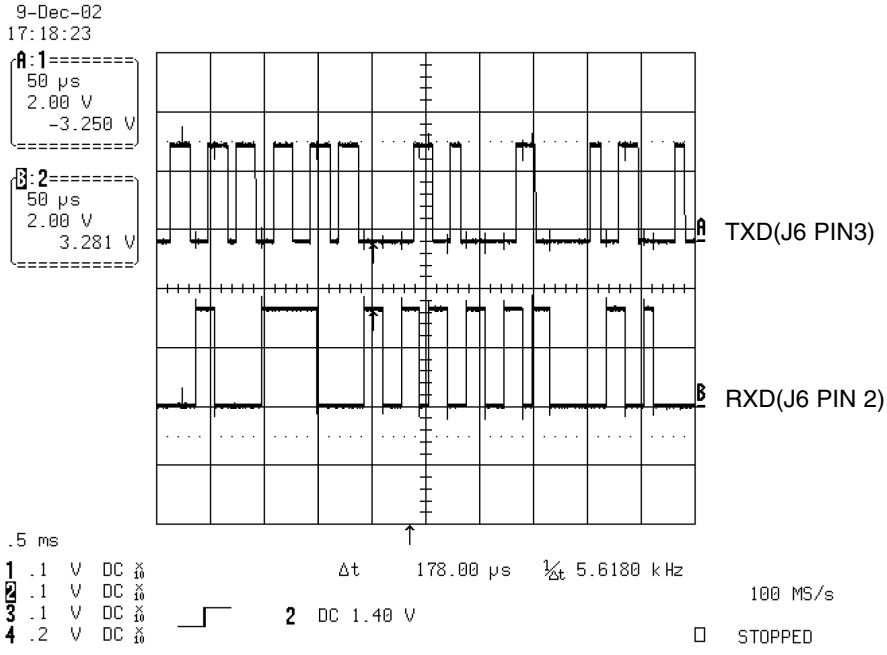


FIG 1-3

4) Flash R/W enable signal during download(Downloading)

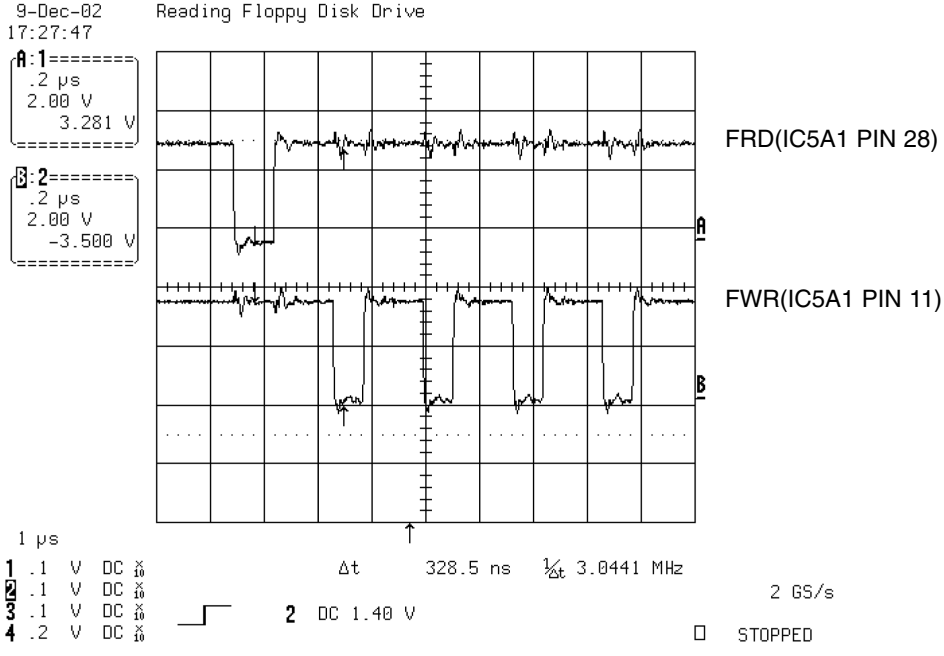


FIG 1-4

2. SDRAM CLOCK

1) MT1379 main clock is at 27MHz(X501)

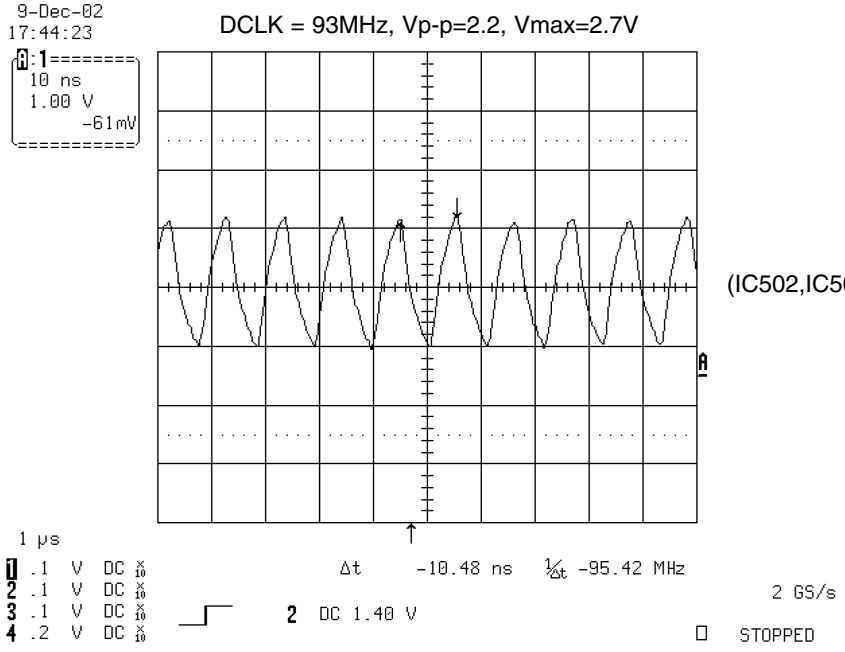


FIG 2-1

3. TRAY OPEN/CLOSE SIGNAL

1) Tray open/close waveform

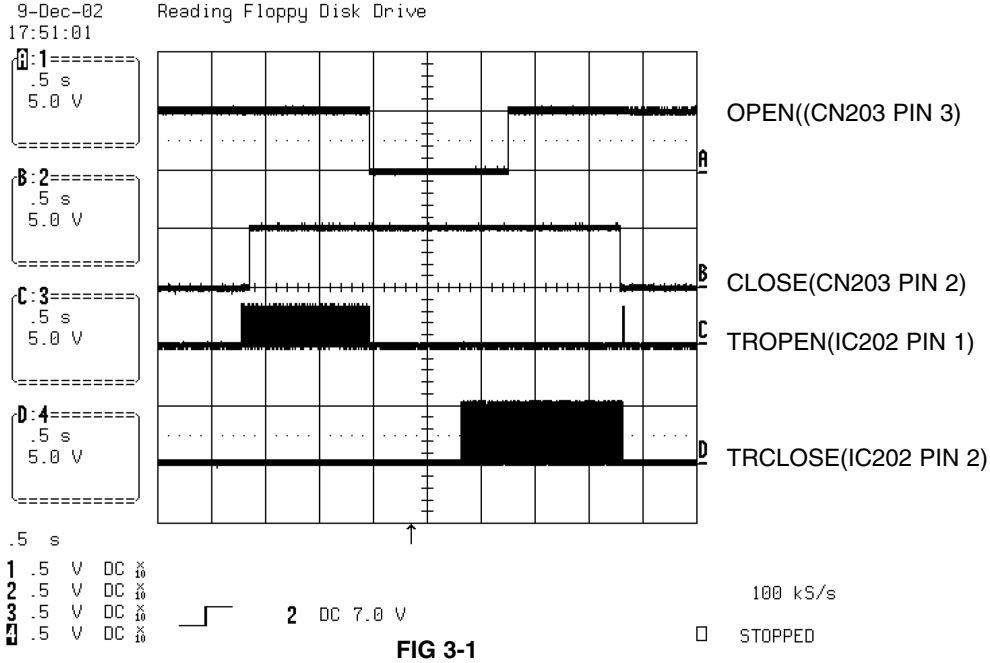


FIG 3-1

2) Tray close waveform

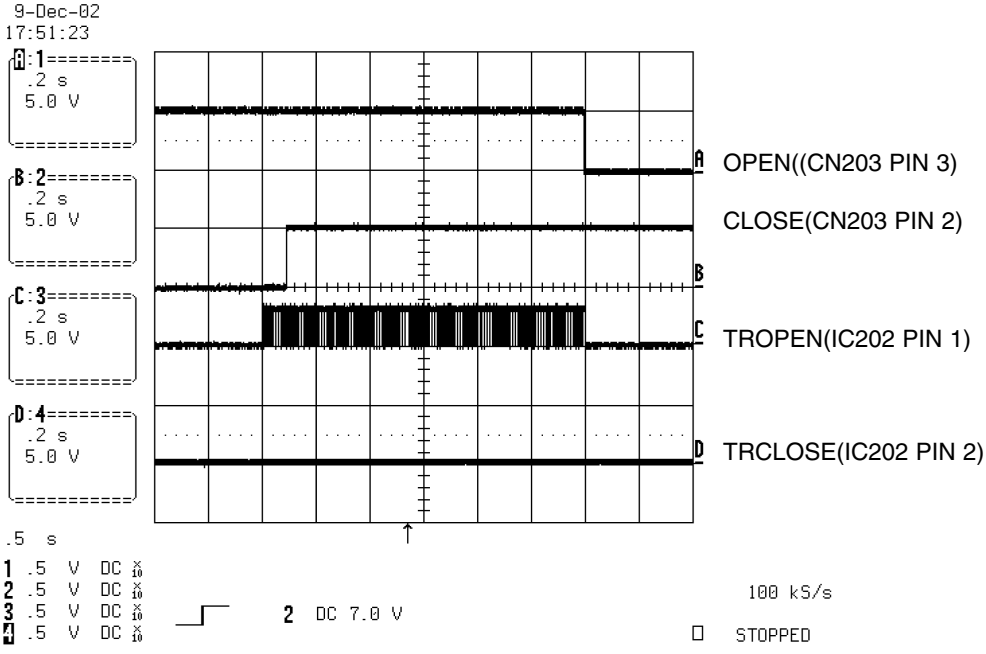


FIG 3-2

3) Tray open waveform

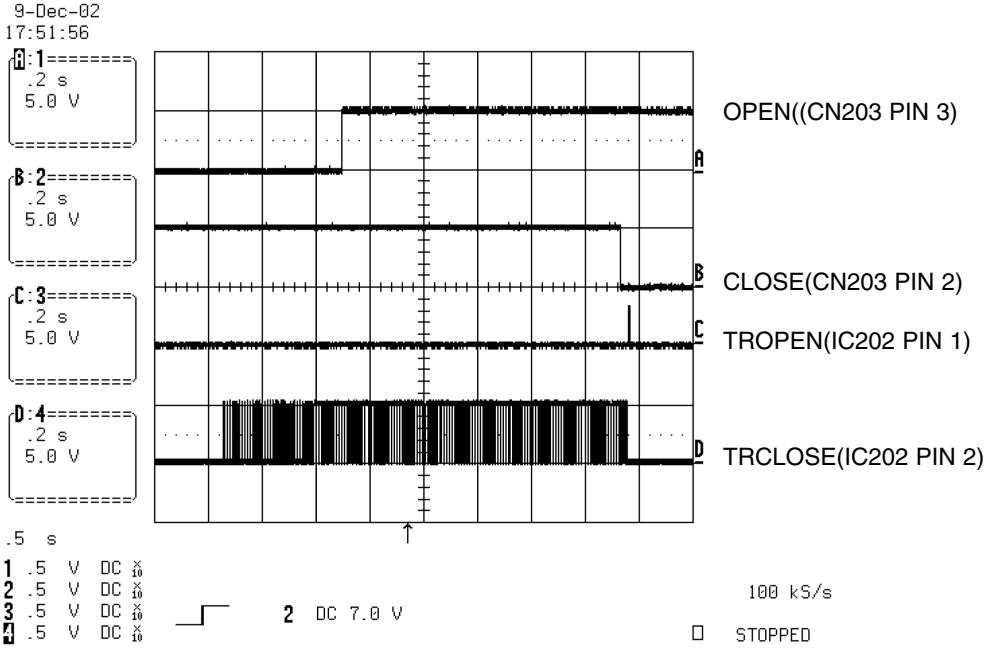
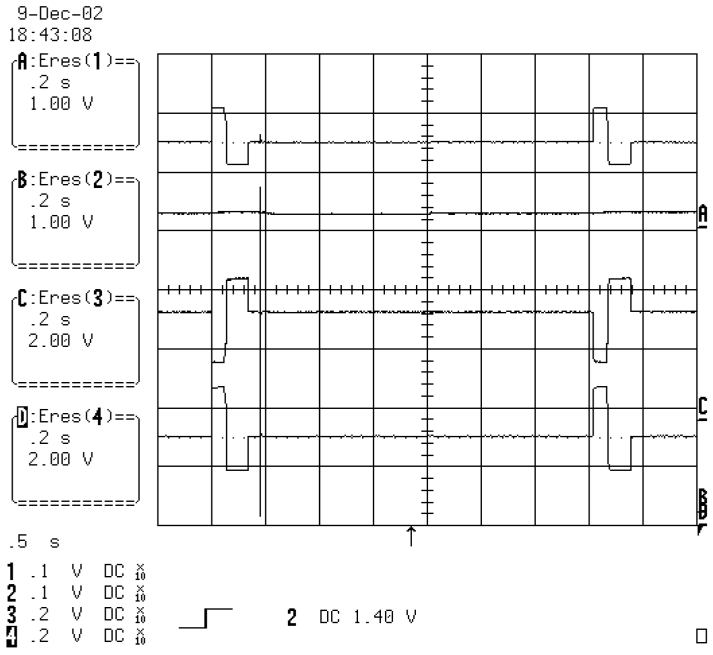


FIG 3-3

4. SLED CONTROL RELATED SIGNAL (NO DISC CONDITION)



FMSO(2.0V/1.4V/1.0V)
(IC501 PIN 19)

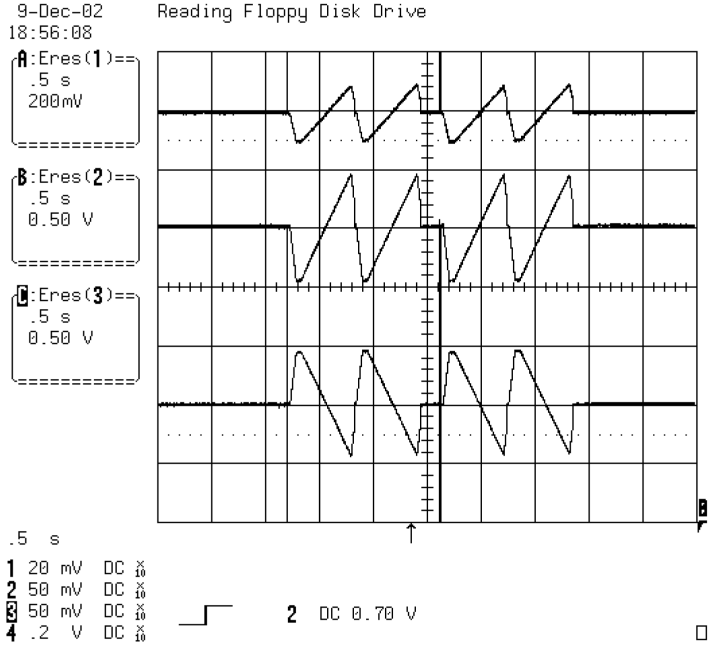
STBY(5V) – (IC201 PIN 50)

SL+(4.7V/3.6V/1.9V)
(IC202 PIN 12)

SL-(5.3V/3.7V/2.5V)
(IC202 PIN 13)

FIG 4-1

5. LENS CONTROL RELATED SIGNAL(NO DISC CONDITION)



FOSO(1.5V/1.4V/1.3V)
(IC501 PIN 12)

F+(4.0V/3.6V/3.2V)
(IC202 PIN 9)

F-(4.0V/3.6V/3.2V)
(IC202 PIN 8)

FIG 5-1

6. LASER POWER CONTROL RELATED SIGNAL(NO DISC CONDITION)

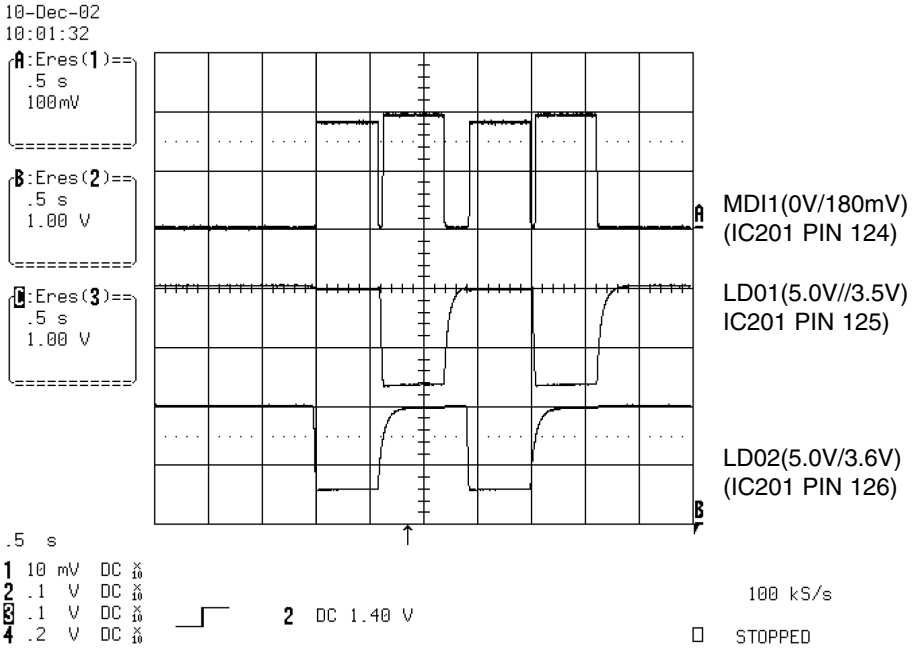


FIG 6-1

7. DISC TYPE JUDGEMENT WAVEFORM

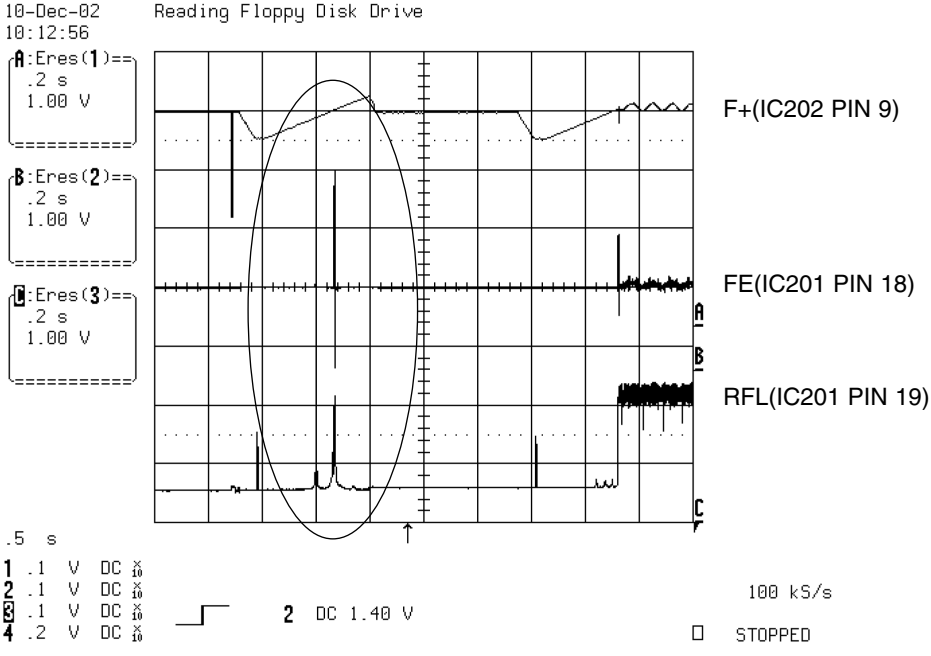


FIG 7-1 (DVD)

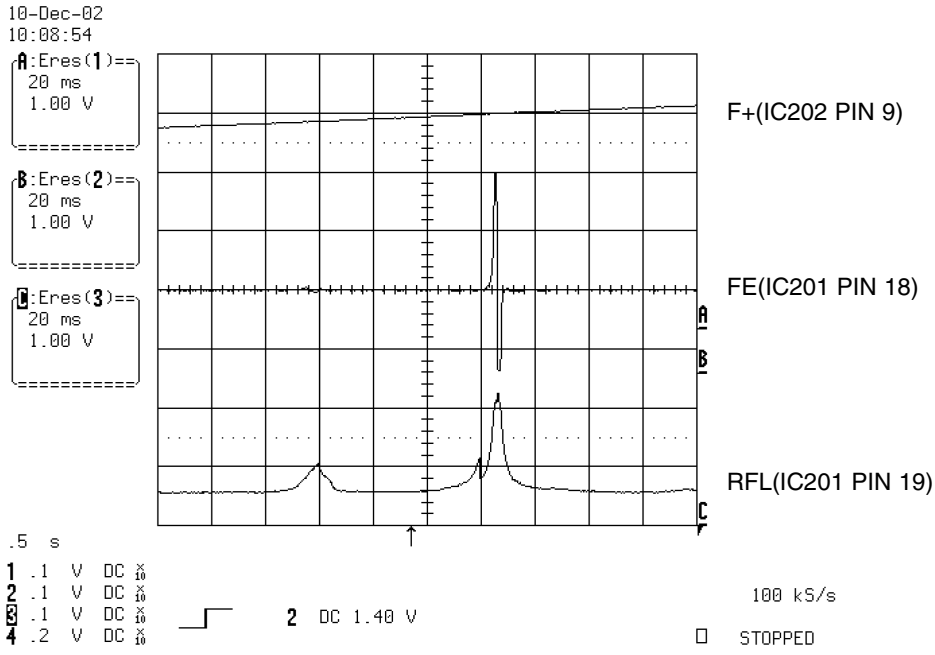


FIG 7-2 (DVD)

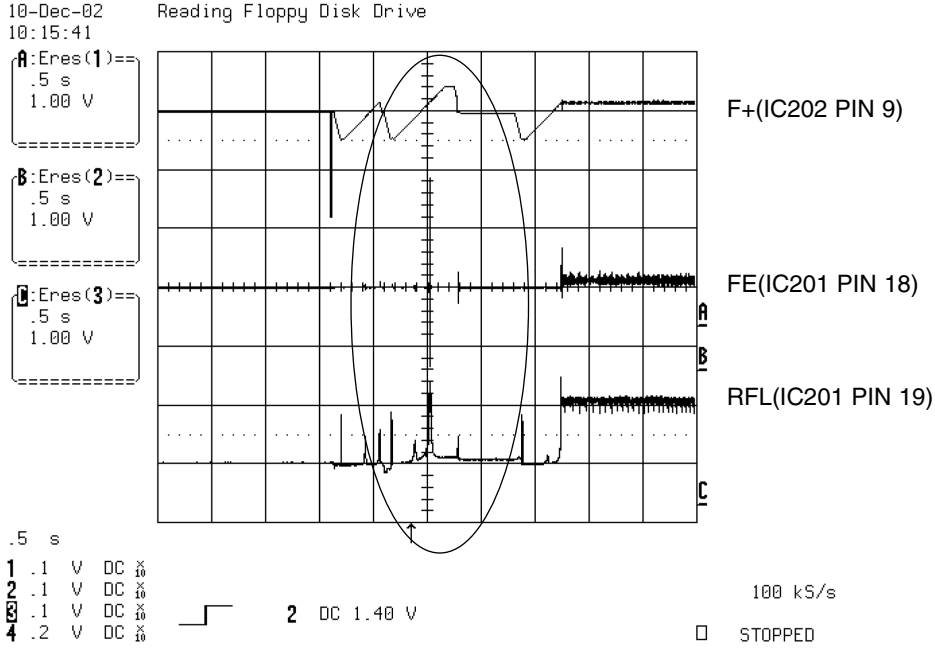


FIG 7-3 (CD)

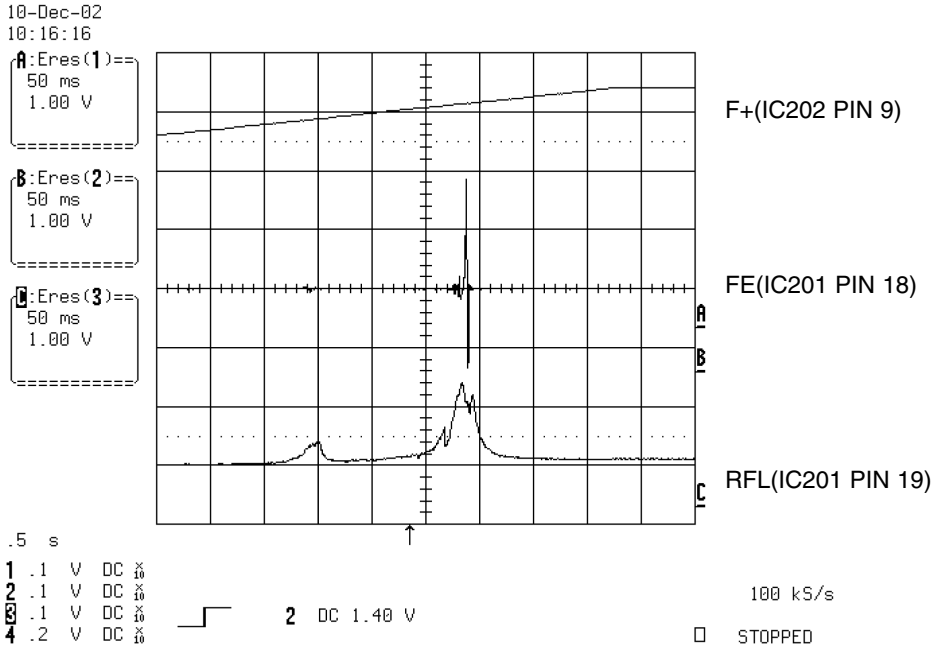


FIG 7-4 (CD)

8. FOCUS ON WAVEFORM

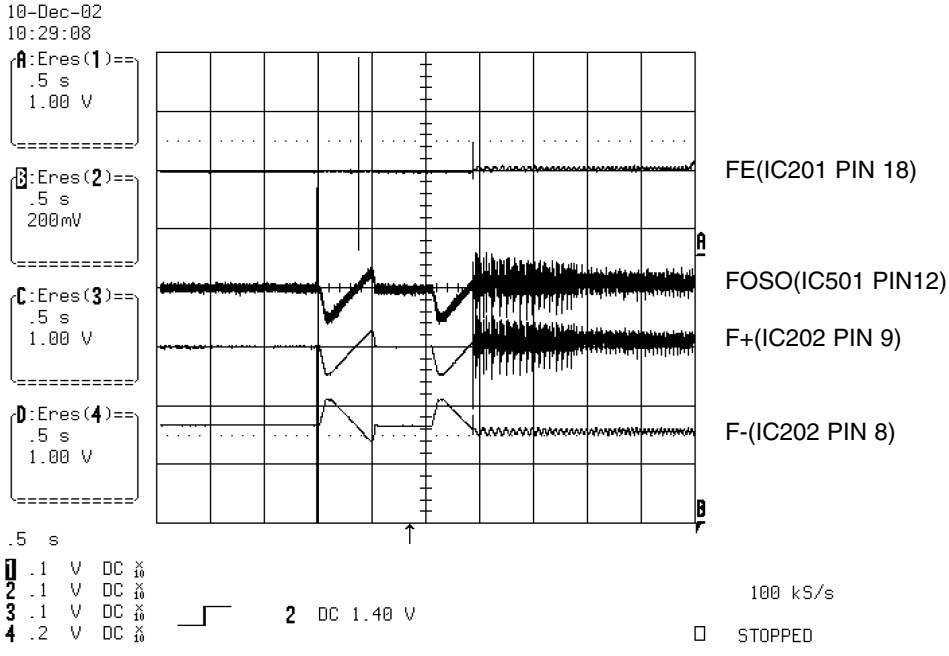


FIG 8-1 (DVD)

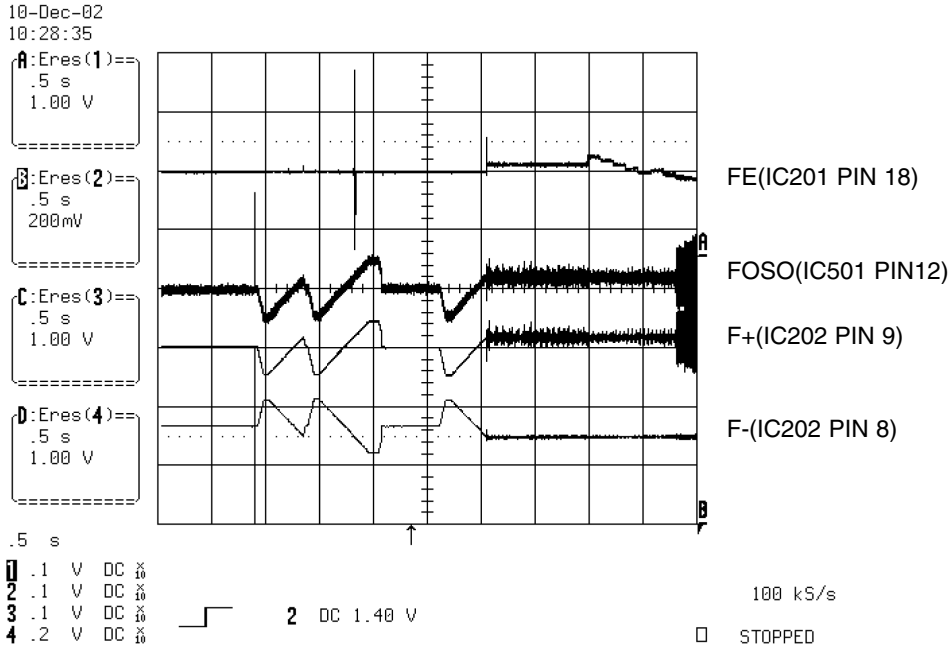


FIG 8-2 (CD)

9. SPINDLE CONTROL WAVEFORM (NO DISC CONDITION)

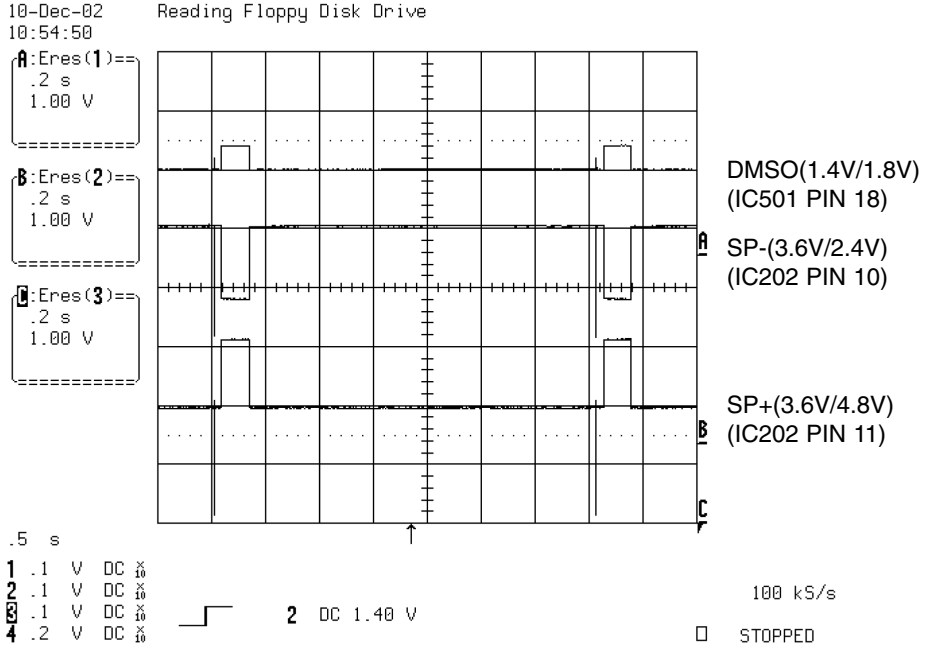


FIG 9-1

10. TRACKING CONTROL RELATED SIGNAL(System checking)

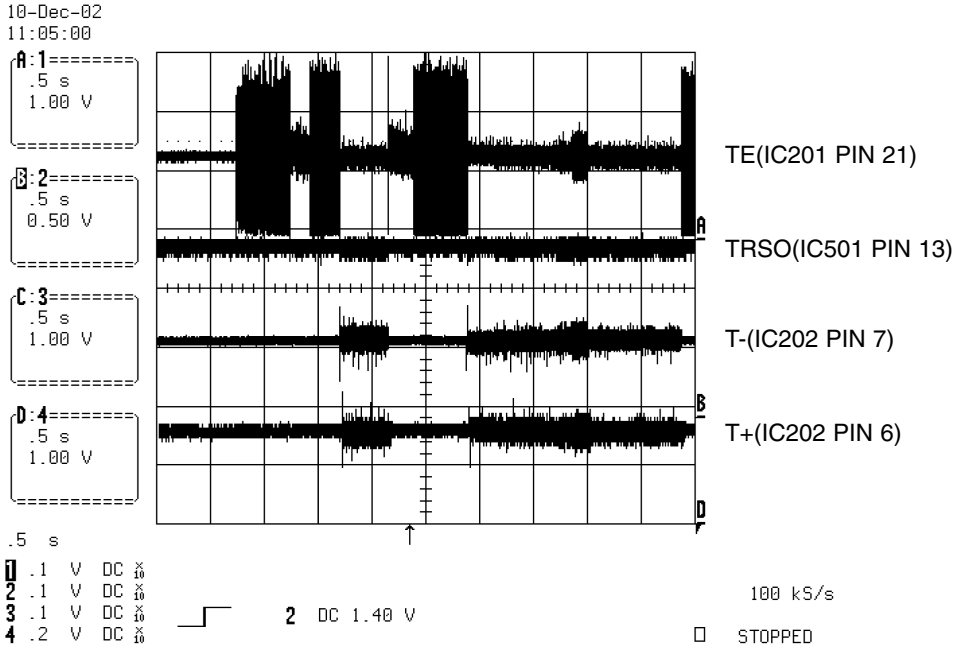


FIG 10-1(DVD)

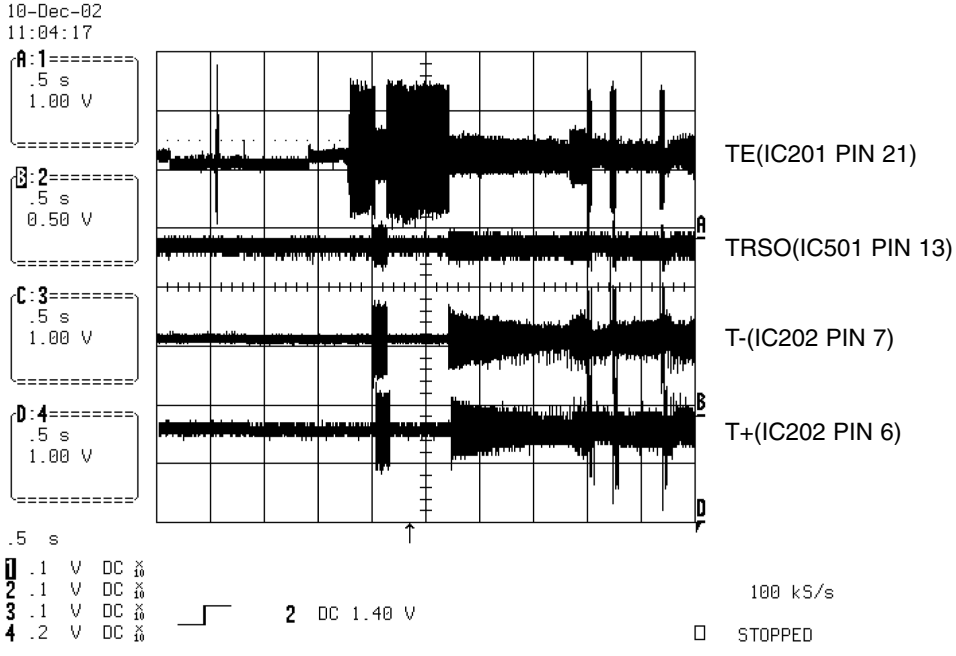


FIG 10-2(CD)

11. RF WAVEFORM

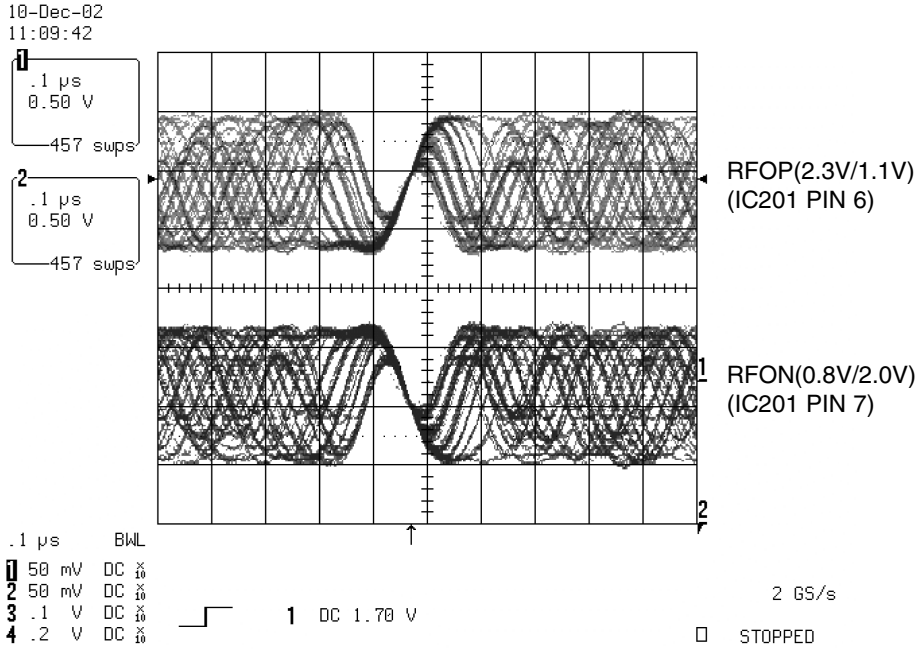


FIG 11-1

12. MT1379 AUDIO OPTICAL AND COAXIAL OUTPUT (ASPDIF)

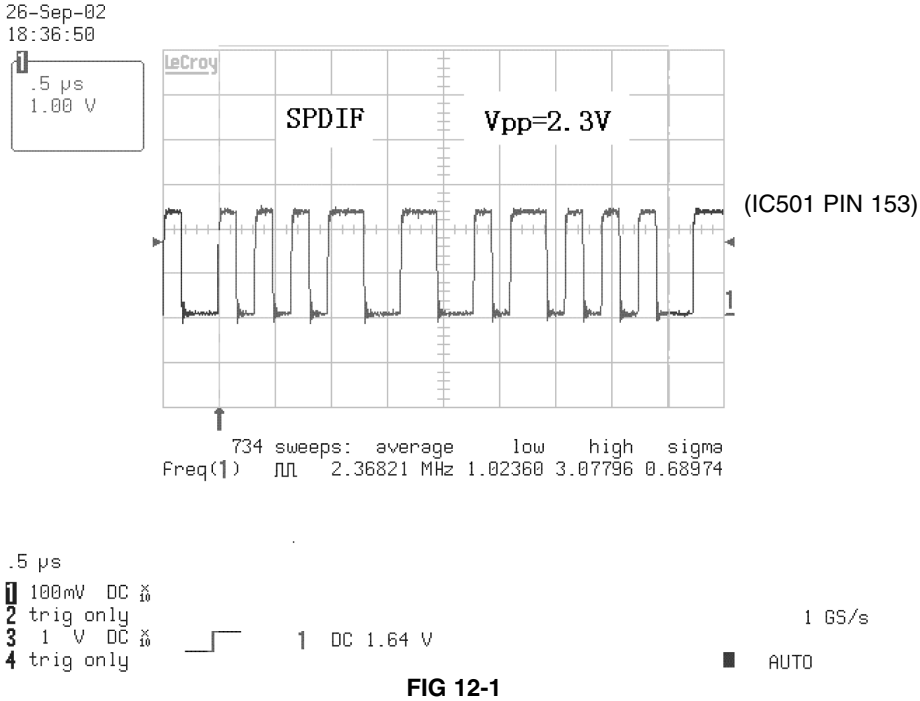
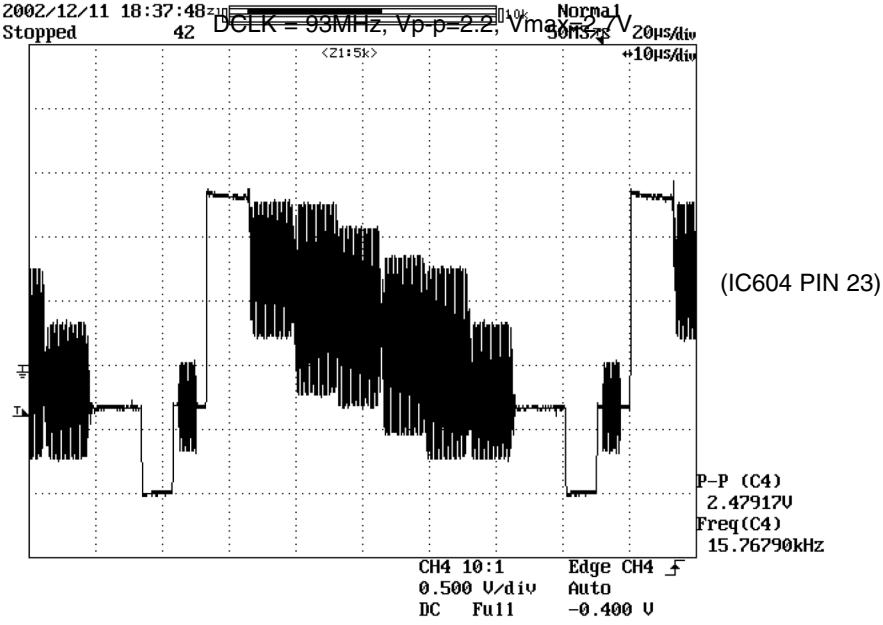


FIG 12-1

13. MT1379 VIDEO OUTPUT WAVEFORM

1) Full colorbar signal(CVBS)

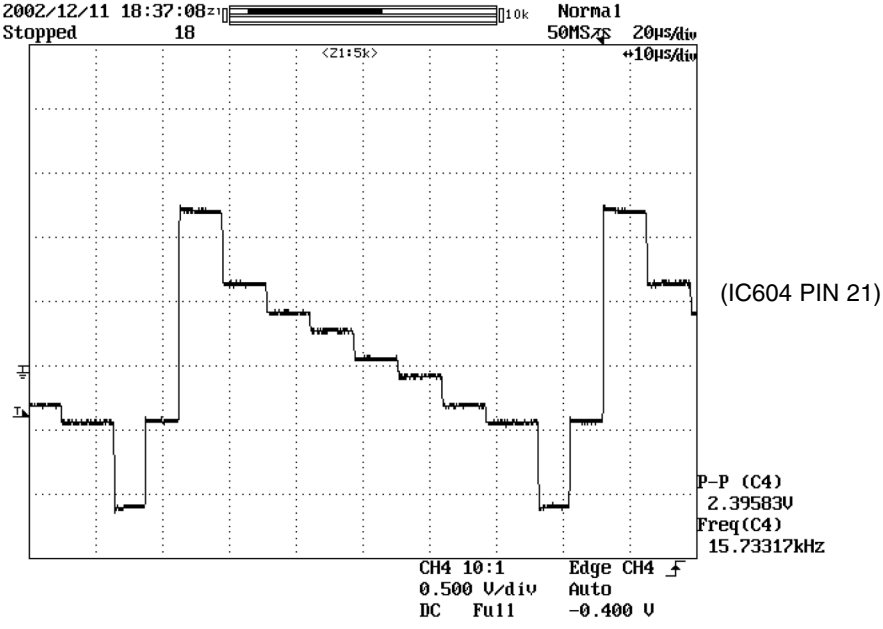


DCLK = 93MHz, Vp-p=2.2, Vmax=2.7V

(IC604 PIN 23)

FIG 13-1

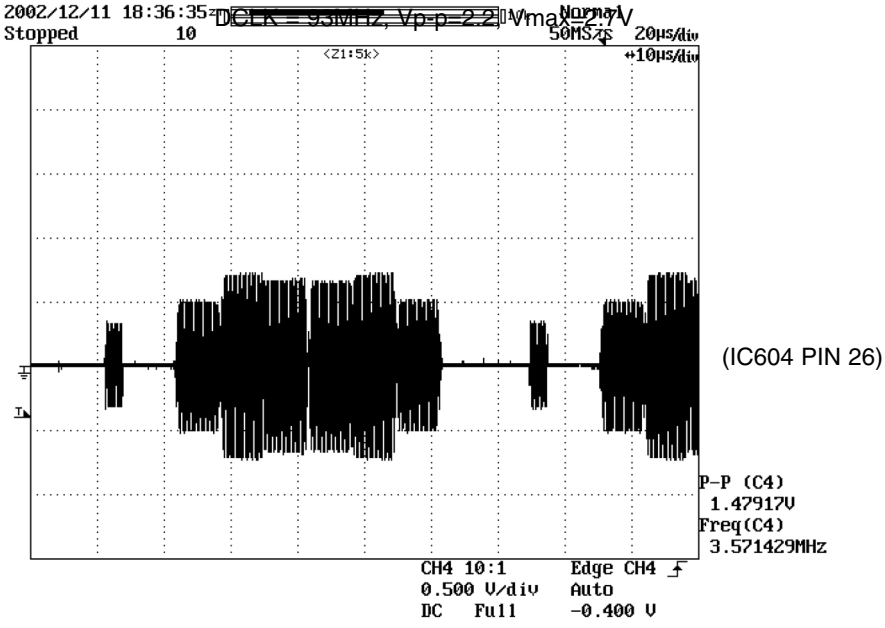
2) Y



(IC604 PIN 21)

FIG 13-2

3) C

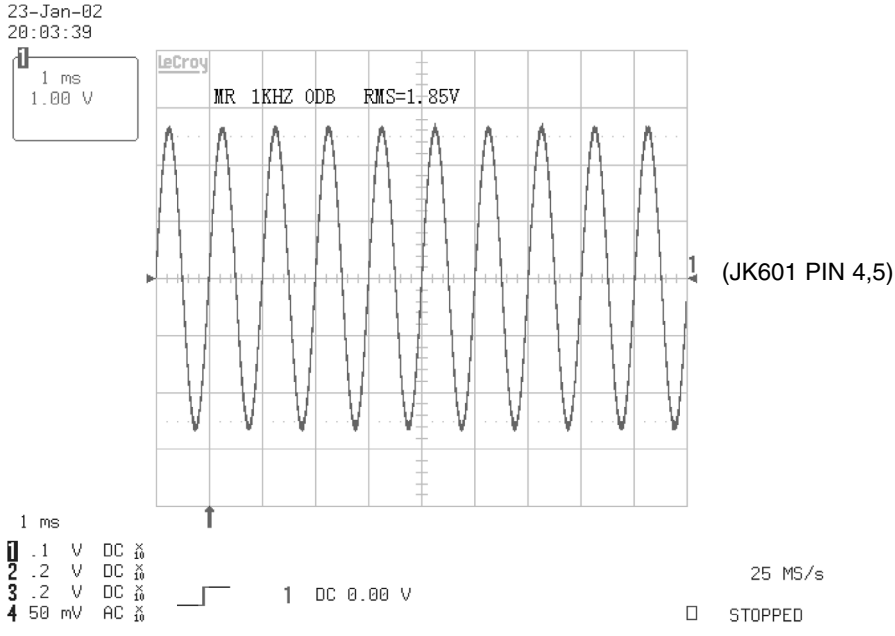


(IC604 PIN 26)

FIG 13-3

14. AUDIO OUTPUT FROM AUDIO DAC

1) Audio L/R



(JK601 PIN 4,5)

FIG 14-1

2) Audio related Signal

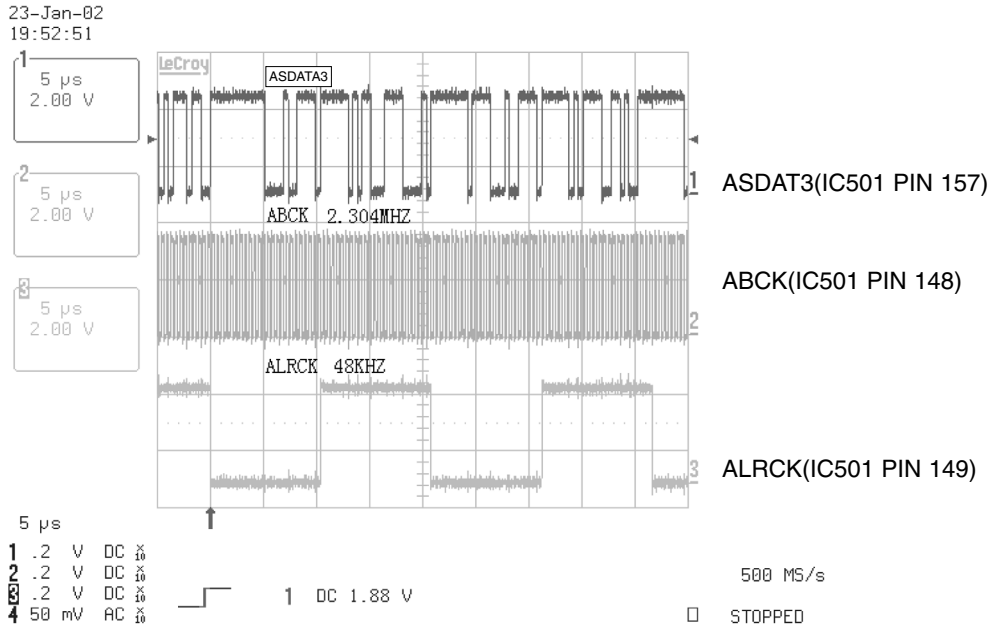
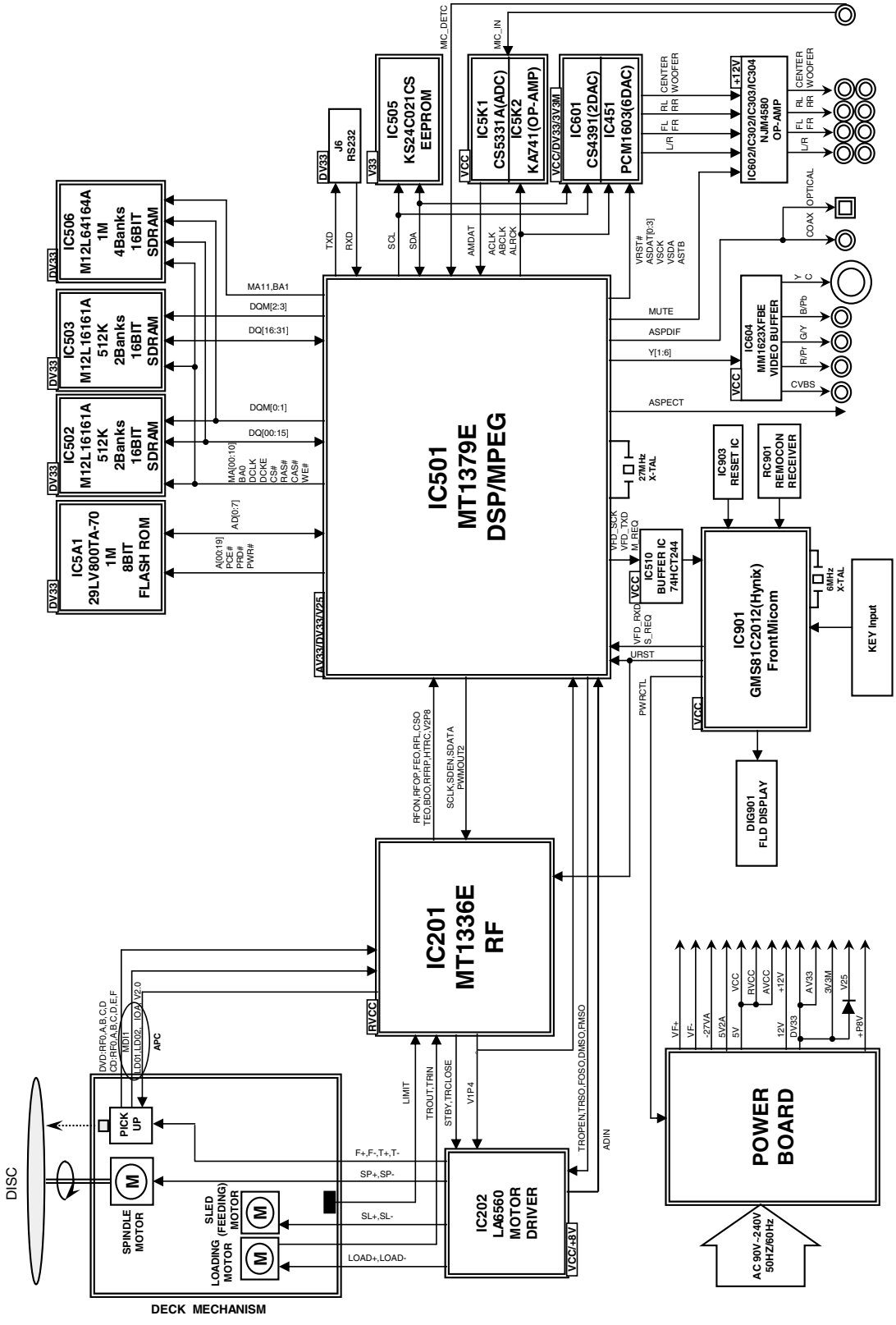


FIG 14-2

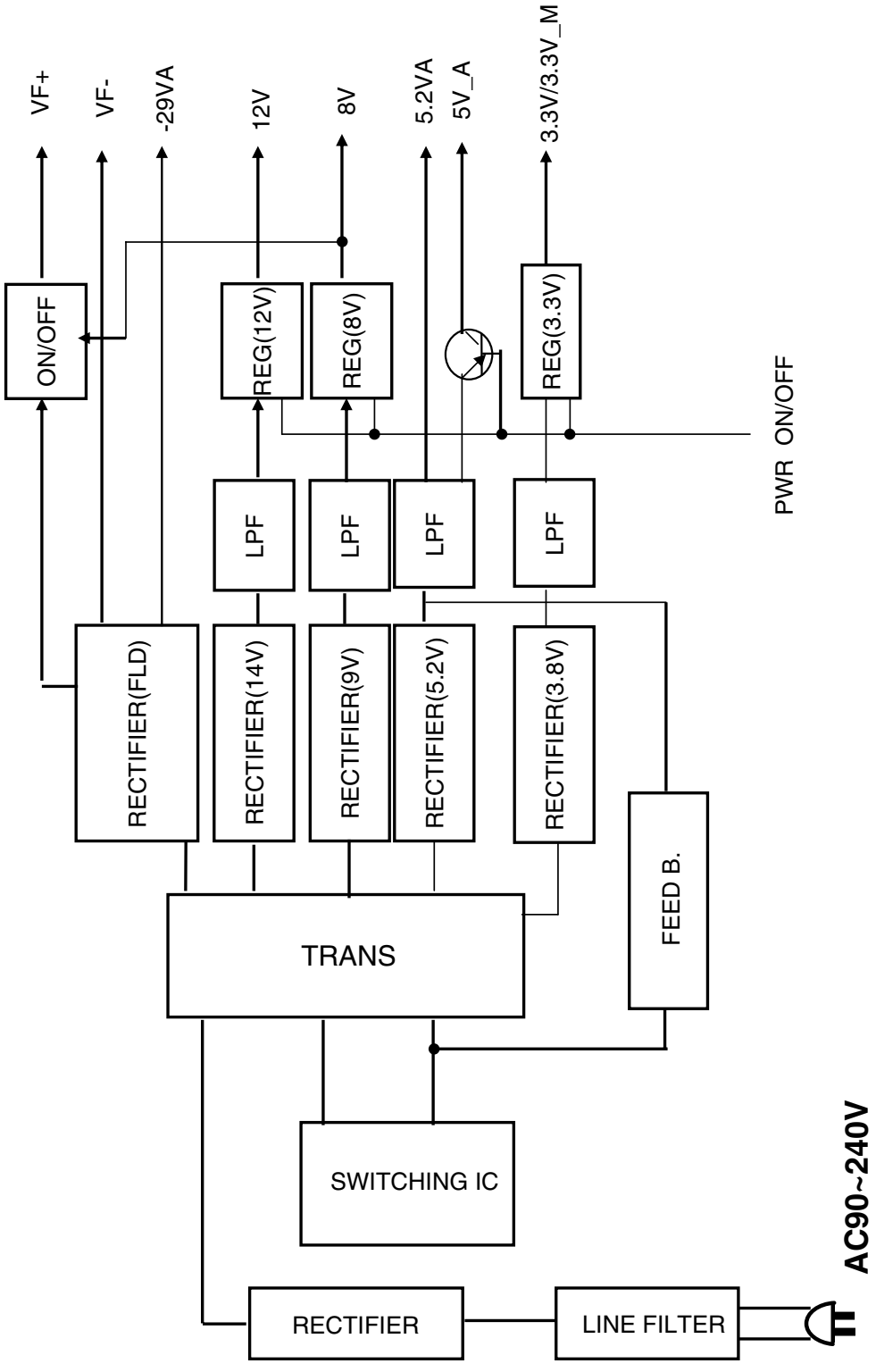
BLOCK DIAGRAMS

1. Overall Block Diagram



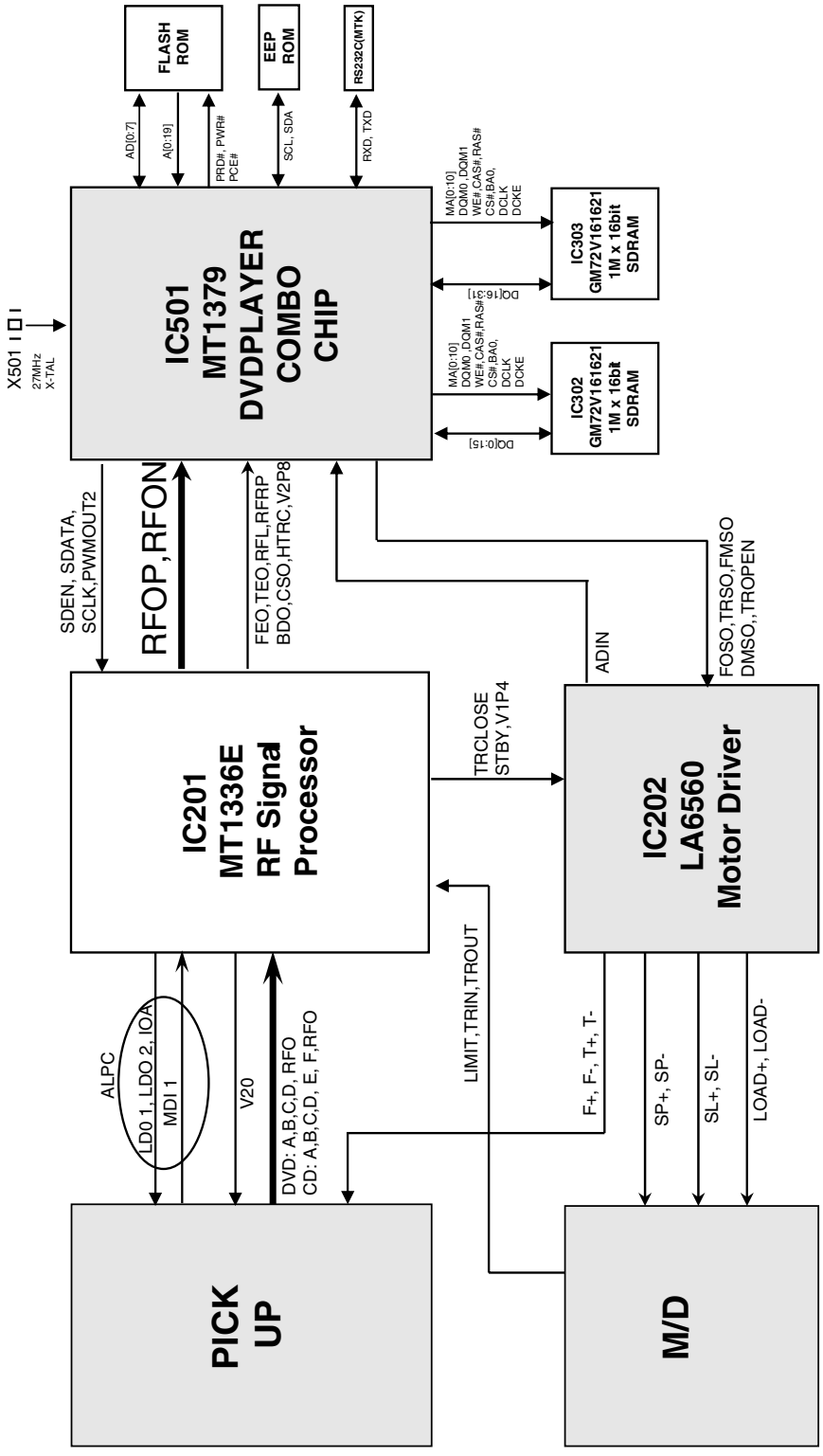
DV7800M'S

2. Power(SMPS) Block Diagram



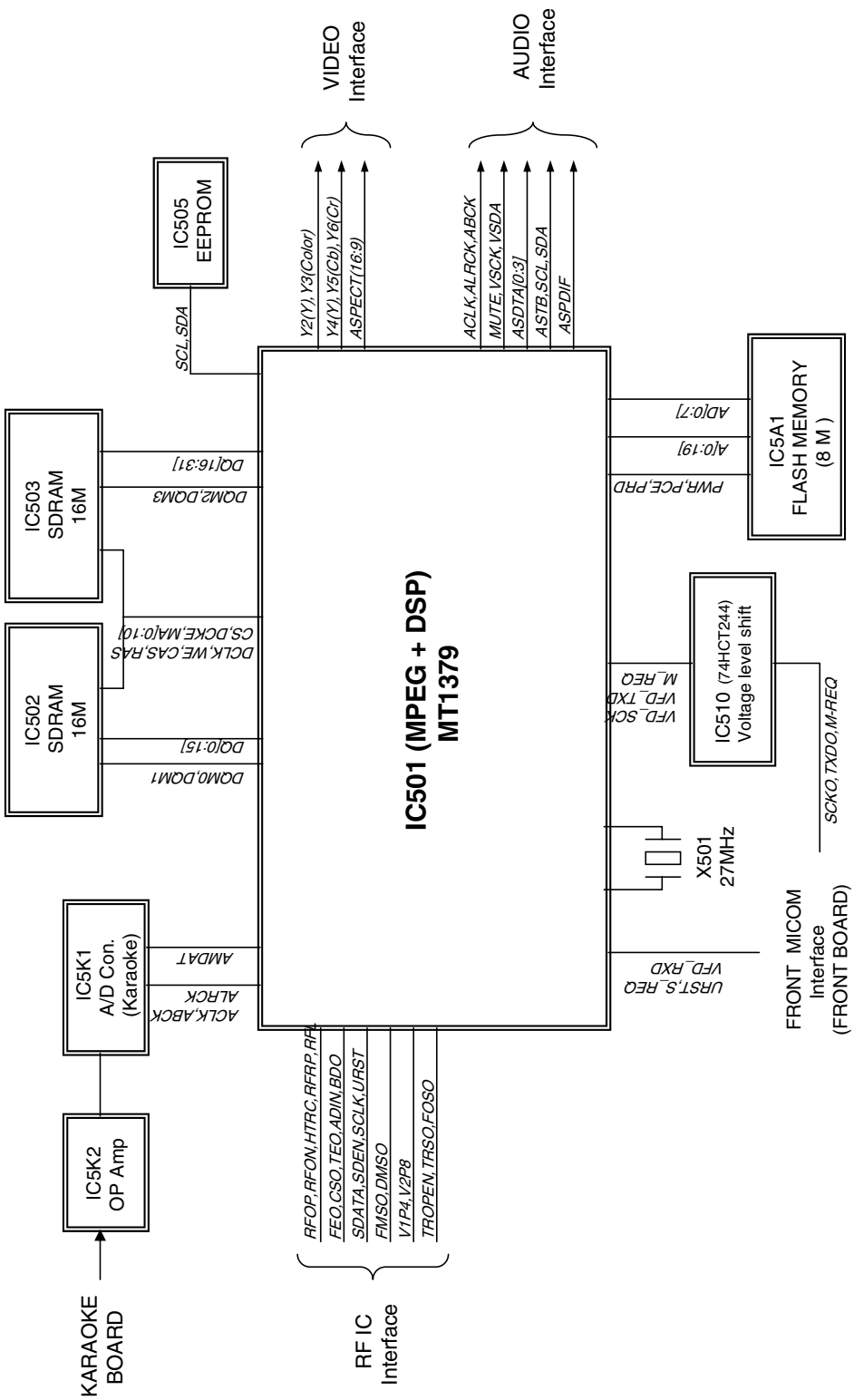
DV7800M'S

3. SERVO Block Diagram



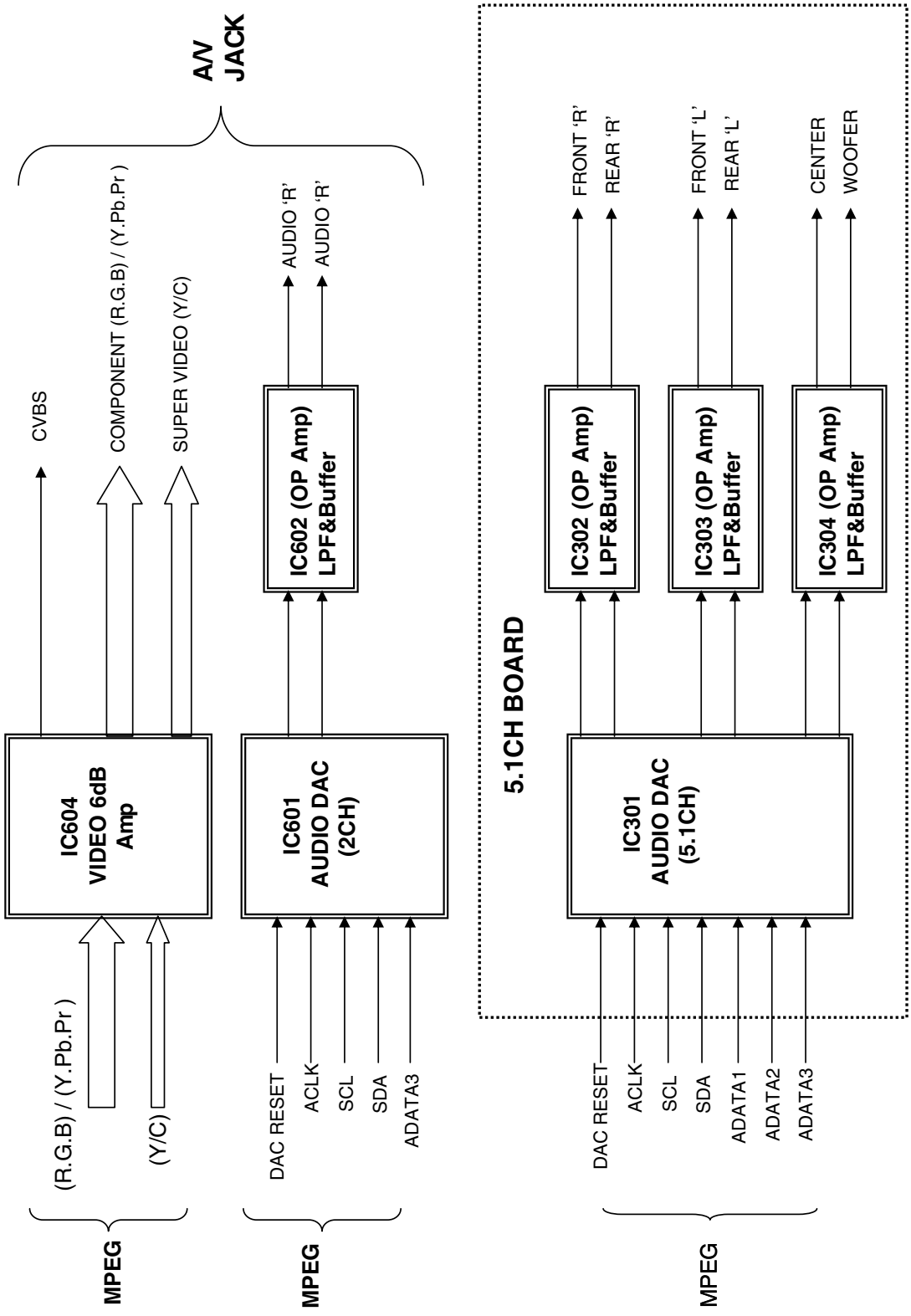
DV7800M'S

4. MPEG & MEMORY Block Diagram



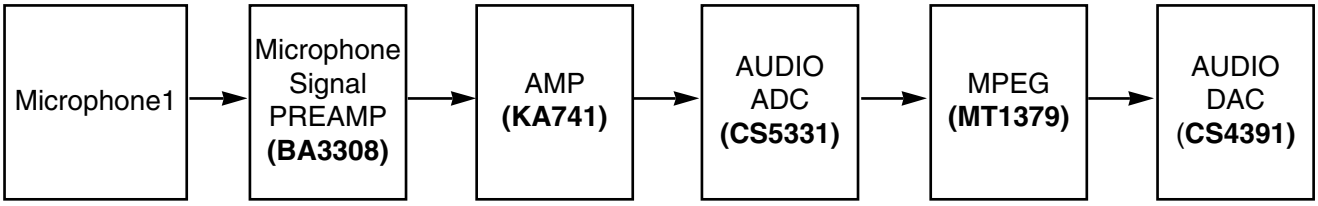
DV7800M'S

5. VIDEO & AUDIO Block Diagram



DV7800M'S

6. KARAOKE Block Diagram(KARAOKE MODEL ONLY)



(Block Digram)

1 The unit turns to KARAOKE MODE with ou-screen lyrics display and melody sound when it play backs VCD or DVD KARAOKE DISC.

2. IF a microphone is connected at this time, MICON recoguizes the connection and prepares the composition of external voice and internal melody.

3. The week signal of the microphone is converted to the digital signal after voice output that has passed through PREAMP(BA3308) and AMP(KA741) passes through(CS5331) that is Audio ADC(Analog to Digital convertor).

4. This digital signal enters NT1379 that is MPEG IC

5. This mixed signal is output to AV JACK after passing through AUDIO DAC(CS4391).

CIRCUIT DIAGRAMS

1. POWER(SMPS) CIRCUIT DIAGRAM

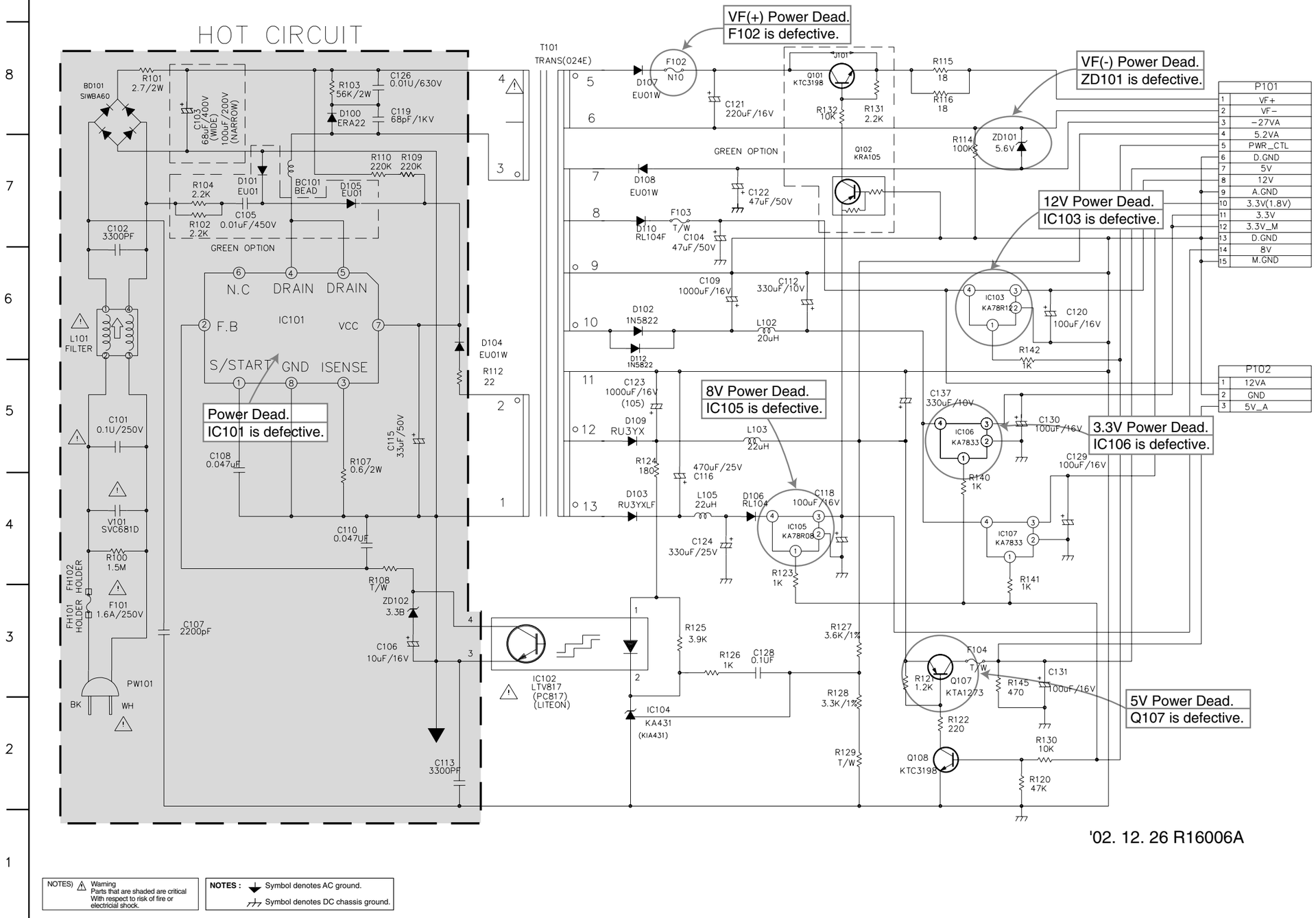
IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS, UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE LG ELECTRONICS CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT. SPECIAL COMPONENTS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION.

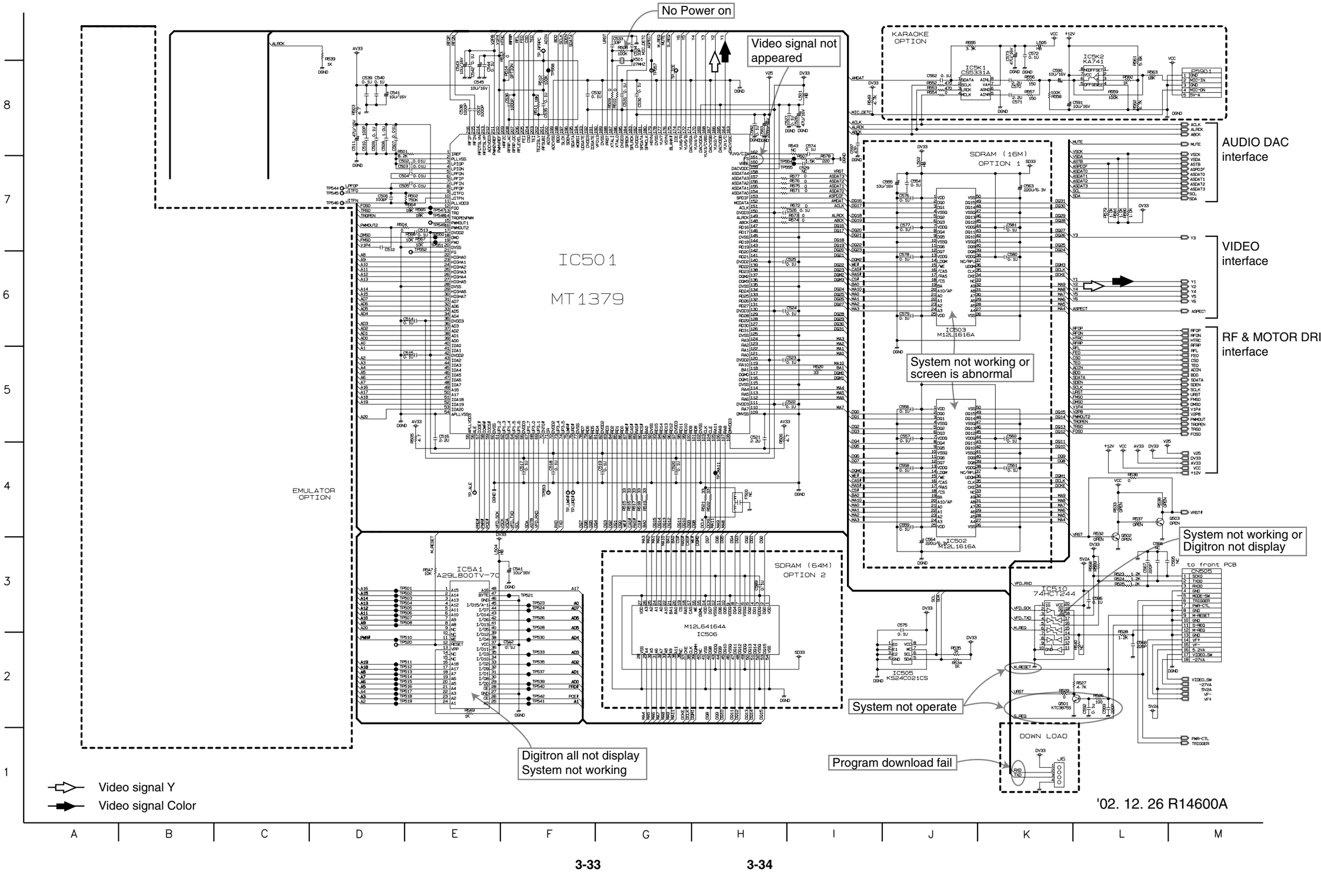
THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS WAY, IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

NOTE :

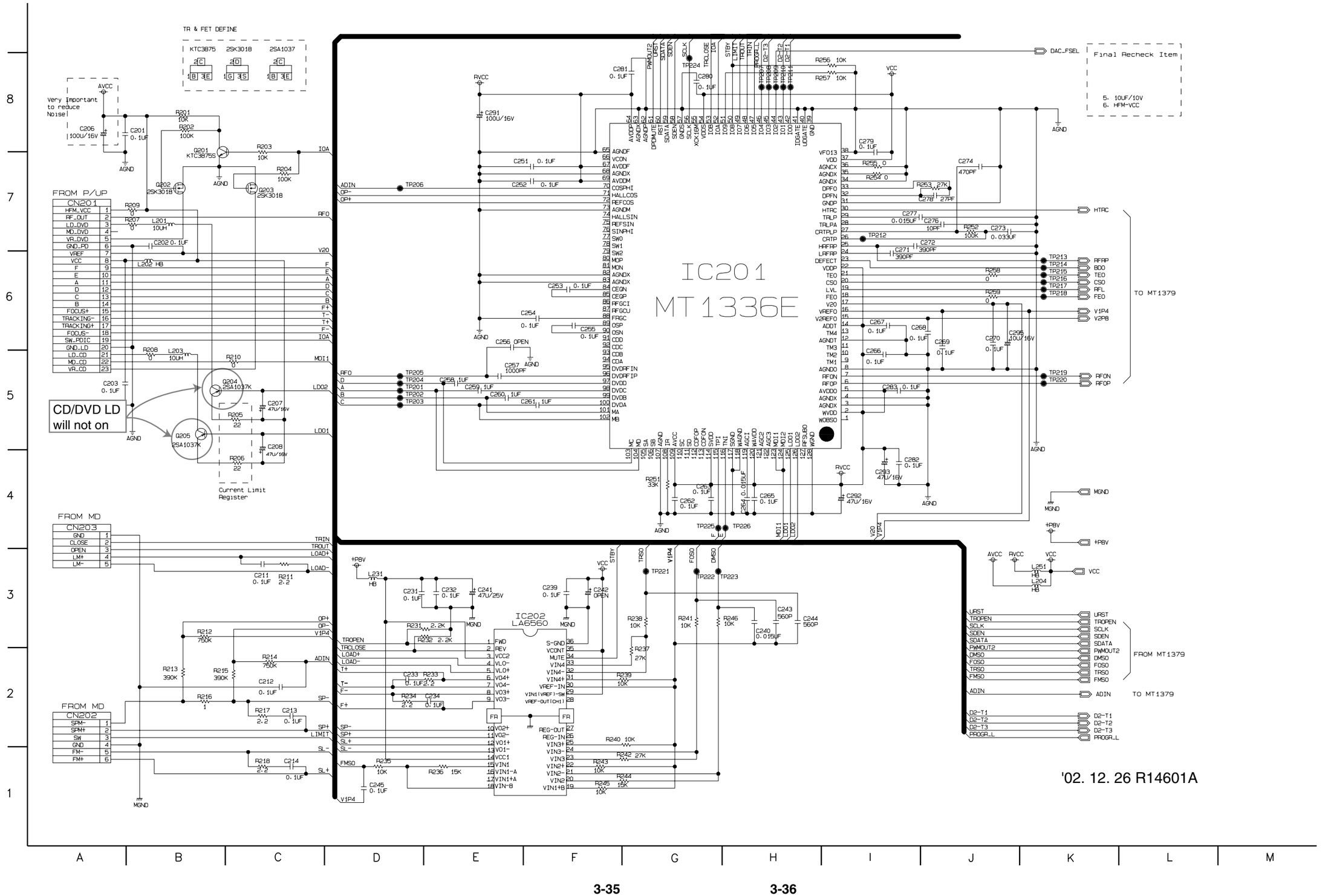
1. Shaded(■) parts are critical for safety. Replace only with specified part number.
2. Voltages are DC-measured with a digital voltmeter during Play mode.



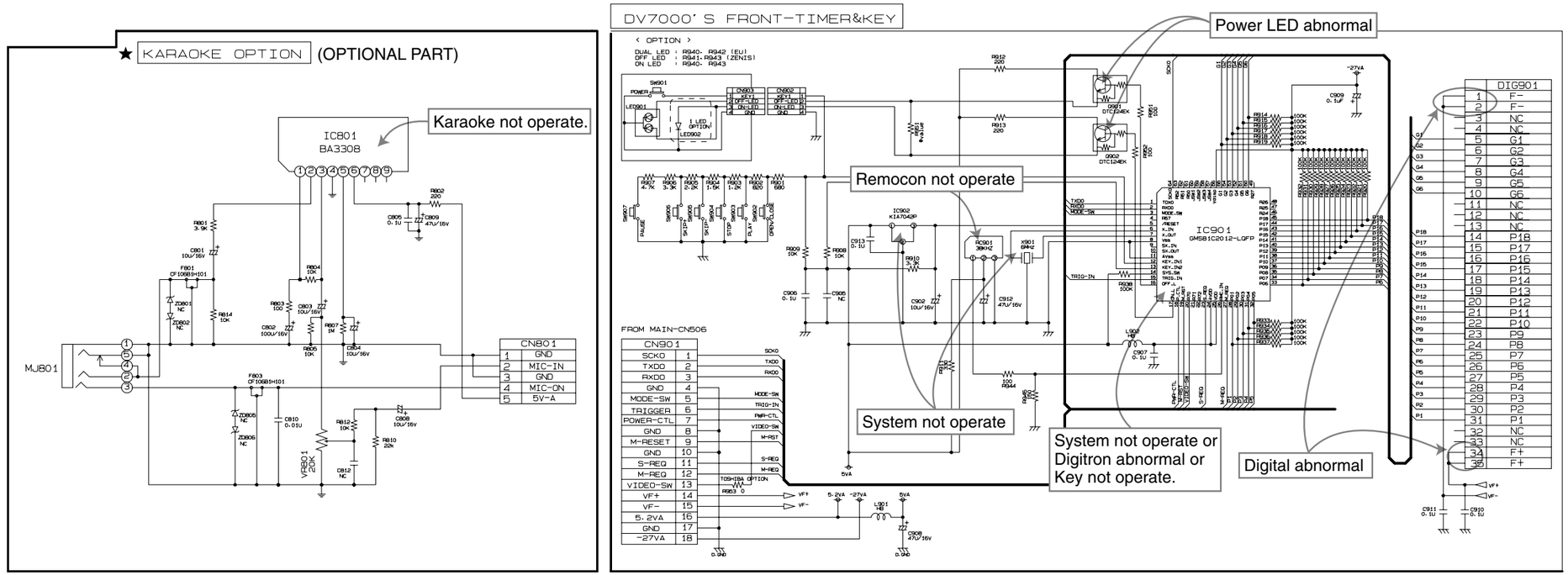
2. SYSTEM CIRCUIT DIAGRAM



3. RF & SERVO CIRCUIT DIAGRAM

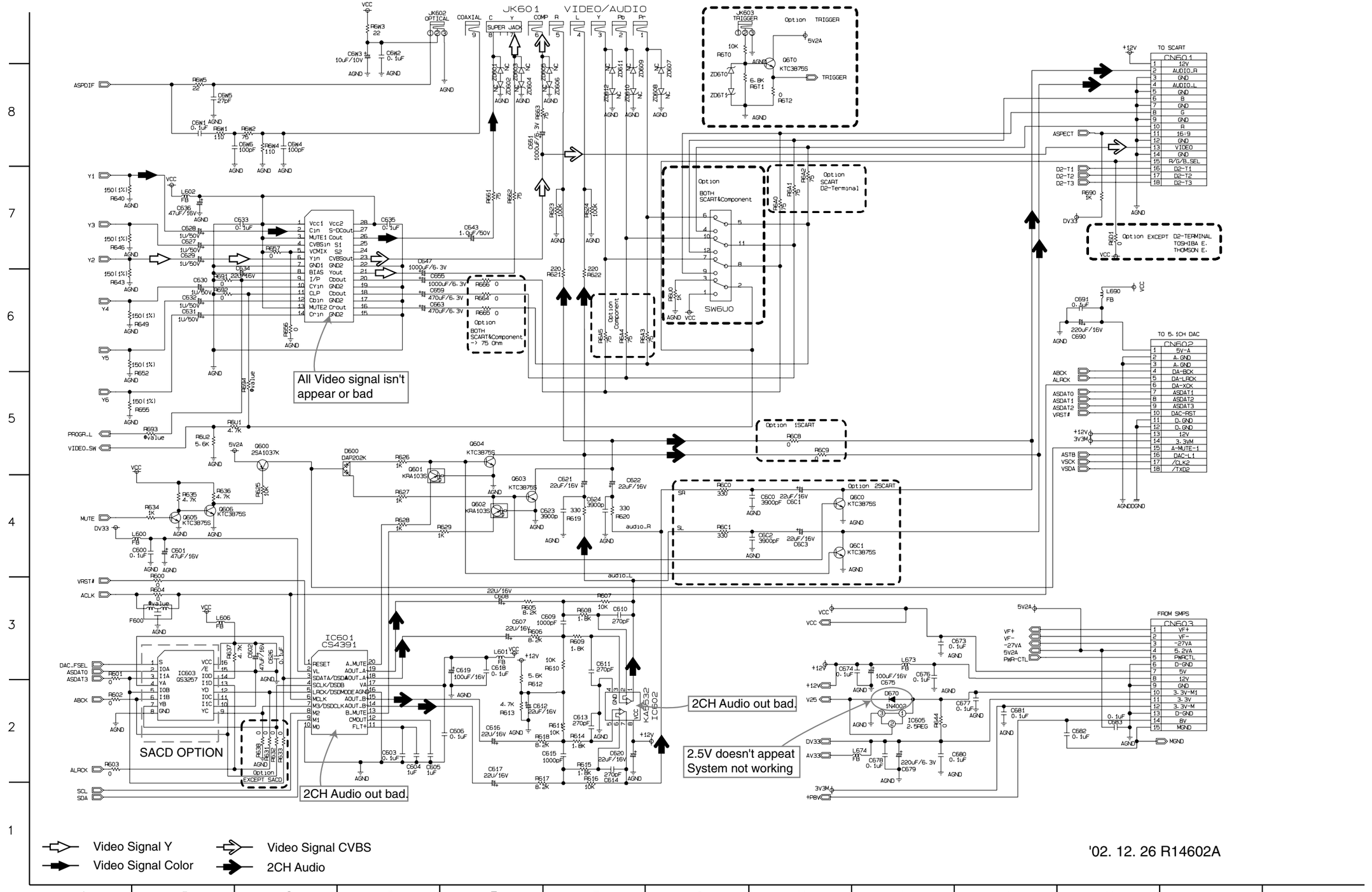


4. TIMER, 5.1CH, SCART, KARAOKE CIRCUIT DIAGRAM



'02. 12. 26 R14603A

5. AV/JACK CIRCUIT DIAGRAM



• CIRCUIT VOLTAGE CHART

	IC201(MT1336E)		IC202(MOTOR)		IC501(MT1379)		IC502(SDRAM)		IC505(EEPROM)		IC510(BUFFER)		IC5A1(FLASH)		IC5K1(KARAOKE)		IC601(CS4391)		IC602(AMP)		IC604(MM1623XFBE)	
PIN	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
1	1.03	2.99	0	0	1.22	1.22	3.27	3.28	0	0	0	0	0.08	0.16	2	0	3.28	3.29	5.52	5.49	5.09	5.08
2	5.11	5.08	0	0	0	0	1.18	1.26	0	0	2.59	2.55	1.82	0.45	1.64	1.63	3.28	3.28	5.52	5.48	2.43	2.42
3	0	0	8.04	8.01	0.96	0.9	1.1	1.52	0	0	0	0	2.84	0	1.64	1.64	0	1.65	5.51	5.47	5.09	5.08
4	0	0	0.12	0.06	2	2.06	0	0	0	0	2.59	2.56	2.83	3.12	1.58	1.56	1.63	1.64	0	0	1.45	0
5	5.11	5.07	0	0.06	0	1.51	0.66	1.07	3.28	3.29	0	0	0.69	0.26	2.23	2.23	1.64	1.65	5.51	5.48	0	0
6	0	1.95	3.64	3.69	1.48	1.47	0.85	1.12	3.28	3.29	3.24	3.23	1.72	0.25	0	0	1.59	1.61	5.51	5.48	1.45	1.69
7	0	0	3.62	3.61	0	1.56	3.27	3.28	0	0	0	0	1.92	0.9	5.12	5.08	0	0	5.52	5.47	0	0
8	0	0	3.64	3.53	3.2	1.52	0.51	0.97	3.28	3.29	0.14	0.08	1.7	1.45	2.23	2.23	3.28	0	12.03	12.03	2.47	2.46
9	5.11	0	3.6	3.76	0.12	0.06	3.06	0			0	0	0	0			3.28	3.29			0	0
10	5.11	5.08	3.62	2.43	0.12	0.06	0	0			0	0	0	0			0	0			1.14	1.76
11	5.11	5.08	3.63	4.85	3.25	3.25	0.06	0.98			0.15	0.09	3.27	3.29			5.01	5.01			0	0
12	0	0	3.62	3.72	1.41	1.49	3.18	0.87			0	0	3.56	3.55			2.31	2.31			2.42	2.42
13	5.11	0	3.64	3.57	1.41	1.41	3.27	3.28			0.15	0.08	3.29	3.29			4.96	0			5.09	5.08
14	5.11	5.08	8.04	8.01	0	0	2.94	2.56			5.19	5.19	0	0			1.42	2.41			2.43	2.42
15	2.84	2.81	1.45	1.48	1.42	1.42	0.47	0.42			0.14	0.09	0.23	0.06			2.4	2.39			0	0
16	1.45	1.43	0.27	1.39	3.3	0	2.93	3.01			5.25	5.24	0	0			0	0			2.49	2.47
17	2.08	2.07	0.29	1.32	2.53	2.53	3.21	3.22			0.15	0.08	0	0			5.11	5.09			0	0
18	1.37	1.42	1.45	1.43	1.42	2.27	2.87	2.95			5.23	5.23	0	0.87			2.41	2.41			2.48	2.47
19	0.69	2.3	1.45	1.43	1.42	1.39	0.15	1.32			0	0	1.98	2.64			2.43	2.43			0	0
20	2.4	0	1.45	0.82	0	0	0	0.05			5.25	5.25	2.28	2.18			0	0			1.18	2.3
21	2.35	0	1.45	1.43	2.61	2.58	3.09	1.32					2.13	1.96							1.76	2.17
22	5.11	5.08	1.45	1.43	0.75	1.46	3.09	1.32					1.67	2.01							0	0
23	0	0	1.47	1.37	2.83	1	3.09	1.32					1.99	1.72							1.76	2.24
24	2.59	3.2	1.45	1.43	1.9	0.89	3.09	1.33					1.93	2.19							0	0
25	0.19	1.88	1.45	1.43	1.72	0.39	3.27	3.29					2.05	1.94							0	0
26	1.58	0	0.95	0.91	0.68	0.31	0	0					0	0							0	0
27	2.56	3.13	0	0	2.84	3.16	0.15	1.36					0	0							0.06	0.05
28	2	2.01	1.45	1.43	0	0	1.84	2.36					0	0							5.09	0
29	2	2.06	5.15	5.11	2.85	0.66	1	2.32					1.49	2.03								
30	2.96	1.52	1.45	1.43	1.83	0.49	0.54	1.75					0.16	1.07								
31	0	0	1.45	1.43	0.91	1.39	0.06	0.06					1.96	1.25								
32	0.06	2.07	1.45	1.43	1.43	1.2	0.05	0.06					0.16	1.1								
33	0.07	2.07	1.46	1.45	1.51	1.57	0	0					0.99	2.2								
34	0	0	5.08	5.06	1.51	1.43	0.73	1.26					1.17	1.07								
35	0	0	5.15	5.11	3.3	3.29	1.48	1.55					0.79	1.82								
36	0	0	0	0	0.81	1.26	2.91	2.53					0.15	1.07								
37	5.13	0			1.45	1.02	0.07	0					3.29	3.3								
38	0	0			1.82	1.6	3.27	3.28					1.93	3.09								
39	0	0			1.2	1.5	1.06	1.05					0.16	1.07								
40	0	0			2	2.06	0.47	0.98					1.5	2.2								
41	0	0			2.17	1.95	0	0					0.16	1.07								
42	5.12	5.09			2.53	2.52	0	0.6					1.21	2.64								
43	5.12	5.09			1.96	1.9	1.12	1.24					0.16	1.08								
44	5.12	5.09			1.79	1.9	3.27	3.28					1.64	1.48								
45	5.12	5.09			0.8	1.72	1.21	0.99					2.05	2.06								
46	5.12	5.09			0.8	1.96	1.31	1.34					0	0								
47	0	0			0.8	1.84	0	0					0	0								
48	5.12	5.09			3.3	2.63	1.43	1.44					0.07	0.13								
49	5.12	0			0	0.13	0.88	1.01														
50	5.08	5.06			0	0.07	0	0														
51	5.09	5.07			0	0																
52	5.1	0			0	0																
53	0	0			0	0																
54	5.13	0			0	0																
55	0.09	0.2			3.25	3.27																
56	1.61	0			1.21	1.18																
57	0	0			0	0																
58	0	0			3.29	3.29																
59	0	0			0	0																
60	0	0			0	0																
61	3.28	0			2.59	2.57																
62	0	0			2.58	2.58																
63	0	0			0	0																
64	0	0			2.59	2.56																
65	0	0			3.29	3.29																
66	0.26	0			3.3	3.29																
67	5.12	5.08			3.29	3.29																
68	0	0			2.57	2.56																
69	5.12	0			5.19	5.18																
70	3.21	2.03			2.59	2.57																
71	3.46	2.2			0.12	0.08																
72	2.81	0			2.53	2.52																
73	0	0			2.59	2.57																
74	0.21	0.09			3.29	3.29																
75	0.22	0			2.61	2.61																
76	0	0.1			3.27	3.24																
77	0.21	0.09			0	0																
78	0.23	0.09			0.94	1.04																
79	0.21	0.08			0.78	1.06																
80	0.23	0.08			0.89	1.15																

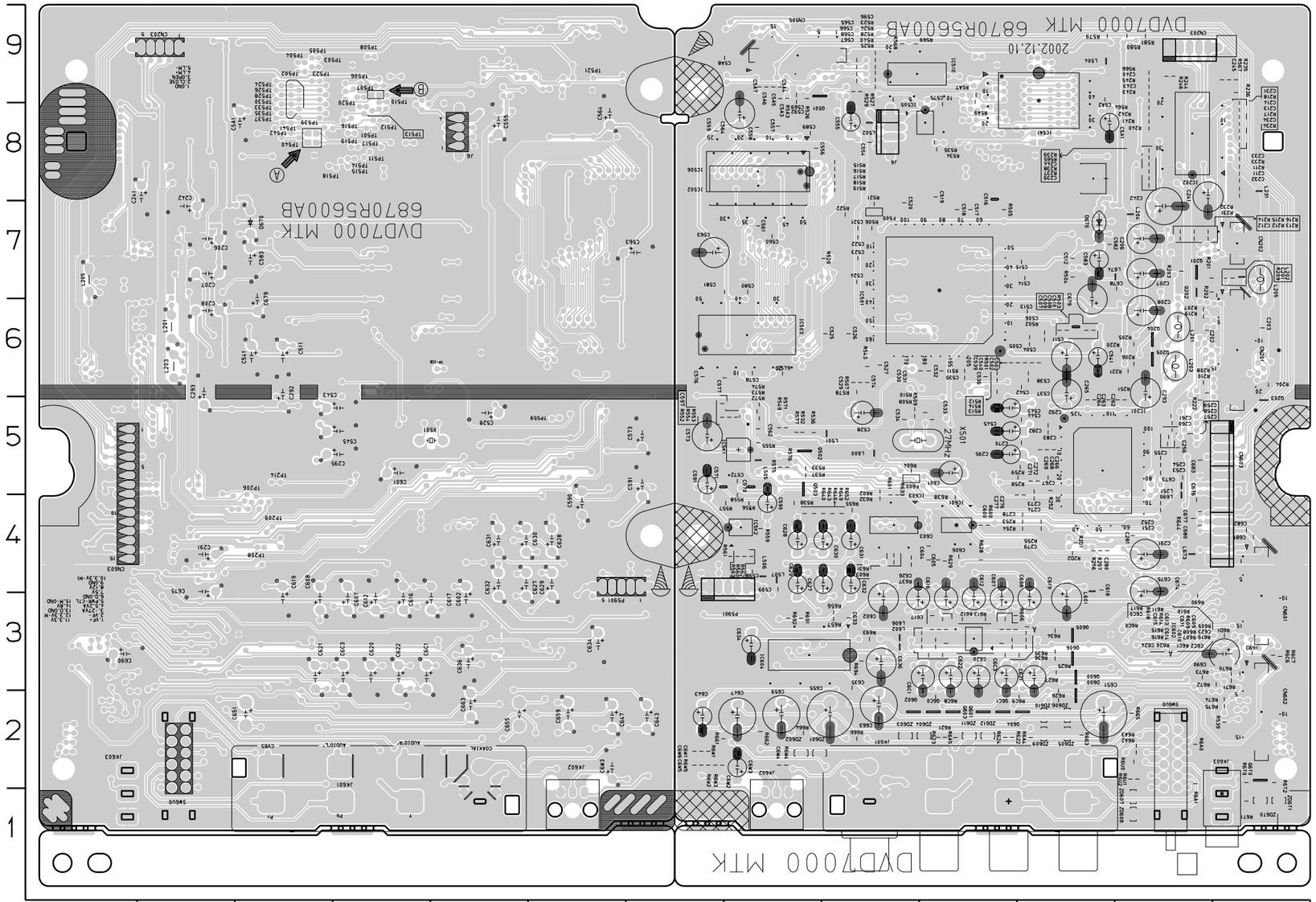
	IC201(MT1336E)		IC202(MOTOR)		IC501(MT1379)		IC502(SDRAM)		IC505(EEPROM)		IC510(BUFFER)		IC5A1(FLASH)		IC5K1(KARAOKE)		IC601(CS4391)		IC602(AMP)		IC604(MM1623XFBE)	
PIN	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
81	0.22	0			0.99	1.34																
82	0	0			2.52	2.52																
83	0	0			3.09	1.33																
84	0.07	0			0.37	1.16																
85	0.07	2.27			3.08	1.1																
86	1.97	0			3.07	1.08																
87	1.96	1.9			0.59	1.04																
88	1.54	1.71			1.57	2.53																
89	0.19	2.22			3.2	3.13																
90	0.21	0			2.77	2.53																
91	0.22	0.06			0.22	1.68																
92	0.22	0			0	0																
93	0.23	0.06			3.32	1																
94	0.23	0.06			0.16	1.58																
95	2.28	0			3.31	1.62																
96	2.28	2.25			3.3	1.08																
97	2.27	1.23			3.3	3.29																
98	2.27	2.23			3.32	1.62																
99	2.27	2.23			0.16	1.09																
100	2.26	2.23			3.32	1.27																
101	2.08	2.17			3.3	1.32																
102	2.07	2.17			0	0																
103	2.07	2.18			1.56	1.55																
104	2.08	0			0.94	1.25																
105	0.14	0.15			0.41	0																
106	0.14	0.16			0.05	0.06																
107	0	0			0	0.06																
108	1.28	1.28			3.27	3.26																
109	5.18	5.05			0	0																
110	0.14	0.16			0.19	1.74																
111	0.15	0.15			3.3	3.29																
112	0.13	0.16			0.18	1.62																
113	0.14	0.15			2.98	2.38																
114	5.1	5.05			3.02	1.48																
115	2.07	2.09			0	0																
116	2.06	2.09			2.86	3.01																
117	0	0			2.86	2.54																
118	0	0			0	0																
119	0	0			0	2.5																
120	5.1	5.05			2.55	2.51																
121	0.13	0.15			3.03	1.4																
122	0.14	0.15			3.03	1.4																
123	0	0.18			0.22	1.39																
124	0	0.18			0.22	0.34																
125	5.08	5.03			0	0																
126	5.08	3.16			3.31	0.98																
127	0.06	2.08			0.26	1.64																
128	0	0			3.31	1.53																
129					3.3	1.15																
130					3.3	3.29																
131					3.31	1.49																
132					0.16	0.89																
133					3.3	0																
134					3.3	1.07																
135					0	0																
136					2.86	2.53																
137					2.86	2.53																
138					0.07	0.86																
139					0.09	0.99																
140					0.07	2.51																
141					0.07	0.94																
142					0.09	1.13																
143					0.07	1.19																
144					0.09	1.07																
145					0.09	0																
146					0	1.51																
147					0.09	1.25																
148					0.07	1.64																
149					0.06	0																
150					0	1.65																
151					0.07	3.29																
152					0	1.6																
153					0	1.64																
154					0	1.44																
155					0	0																
156					0	0																
157					0	1.63																
158					0	3.29																
159					0	3.27																
160					0	1.27																

	IC201(MT1336E)		IC202(MOTOR)		IC501(MT1379)		IC502(SDRAM)		IC505(EEPROM)		IC510(BUFFER)		IC5A1(FLASH)		IC5K1(KARAOKE)		IC601(CS4391)		IC602(AMP)		IC604(MM1623XFBE)	
PIN	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
161					0	1.27																
162					0	2.35																
163					0	0																
164					0	0.73																
165					0	3.27																
166					0	0.5																
167					0	0																
168					0	0.53																
169					0	3.27																
170					0	0.59																
171					0	0																
172					3.01	0.72																
173					0	0.72																
174					0	0																
175					0	2.73																
176					0	3.13																
177					0	3.13																
178					0	3.25																
179					0	0																
180					0	0																
181					2.04	2.64																
182					0	2.52																
183					0	0																
184					0	0.09																
185					0	3.26																
186					-	-																
187					0	0.08																
188					0	0																
189					0	0																
190					0	0																
191					0.23	0																
192					0	3.29																
193					0	0																
194					0	0																
195					0	0																
196					0	0																
197					0	1.63																
198					0	0																
199					0	0																
200					0	2.15																
201					0	1.44																
202					0	1.44																
203					0	1.43																
204					0	1.43																
205					0	1.42																
206					0	2.1																
207					0	2.07																
208					0	1.41																
209					0	1.52																
210					0	1.43																
211					0	2.81																
212					0	3.28																
213					0	0.12																
214					0	0.12																
215					1.02	1.43																
216					0	1.43																

	Q201		Q202		Q203		Q204		Q205	
	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
E	0	0	0	0	0	0	5.14	4.34	5.14	5.1
C	0	5.09	0	0	0	0.19	0	2.42	0.5	0
B	0.68	0	0	5.04	5.04	0	5.08	3.64	5.08	5.05
	Q501		Q600		Q603		Q604		Q605	
	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY	STOP	PLAY
E	0	0	5.17	0	0	0	0	0	0	0
C	0	0	0	0.13	0	0	0	0	0	0
B	0.83	0.83	5.11	0	0.75	0	0.75	0.16	0.74	0.74

PRINTED CIRCUIT DIAGRAMS

1. MAIN P.C.BOARD

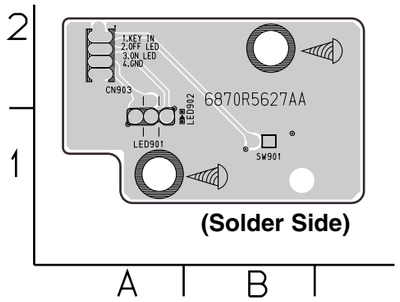


LOCATION GUIDE

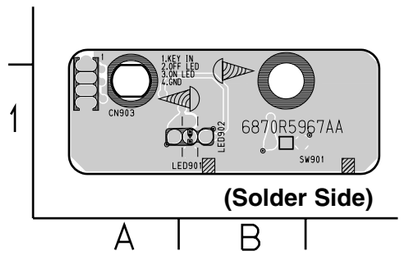
TP-ICE	E6	C201	M7	C506	K6	C575	J8	C643	G2	L202	M7	R232	M8	R538	H4	R624	J2	R6W3	G2
TP201	A6	C202	L6	C507	K6	C576	G6	C647	H2	L203	L6	R233	M8	R539	M2	R625	K3	R6W4	H2
TP202	B6	C203	M6	C508	K6	C577	H6	C651	K2	L204	L7	R234	M8	R540	I9	R626	K2	R6W5	G2
TP203	B6	C206	L7	C509	K6	C578	H6	C655	I2	L205	M7	R235	M9	R543	I6	R627	K2	SW6U0	L2
TP204	B5	C207	L7	C510	K6	C579	H6	C659	H2	L231	M8	R236	M9	R549	H5	R628	J4	TP207	K4
TP205	A6	C208	L6	C511	K6	C580	H7	C663	I2	L251	L5	R237	L8	R552	G5	R629	J4	TP210	K4
TP206	C4	C211	M8	C512	K7	C581	H7	C673	L5	L501	I5	R238	L8	R553	H5	R631	J4	TP211	K4
TP208	C4	C212	L7	C513	K6	C582	K7	C674	L4	L502	I8	R239	L8	R554	H5	R632	J4	TP212	K5
TP209	C4	C213	M8	C514	K7	C583	K7	C675	L4	L504	K9	R240	L8	R555	H5	R633	J4	TP213	J5
TP214	C5	C214	M8	C515	K7	C589	H8	C676	L4	L505	H5	R241	L8	R556	H4	R634	K3	TP215	J5
TP225	B6	C231	M8	C516	J8	C590	H4	C677	L4	L506	H4	R242	L8	R557	H4	R635	K3	TP216	J5
TP226	B6	C232	M8	C517	J7	C591	G5	C678	L7	L507	H4	R243	L9	R558	H4	R636	K3	TP217	K5
TP501	D8	C233	M8	C518	J7	C592	H9	C679	K6	L600	I5	R244	L9	R559	H4	R637	I4	TP218	J5
TP502	C9	C234	M8	C519	J8	C596	I9	C680	L4	L601	K4	R245	L9	R560	H4	R638	J4	TP219	K6
TP503	C9	C239	L8	C520	I7	C597	G5	C681	M4	L602	I3	R246	L9	R561	H4	R640	H4	TP220	K6
TP504	C9	C240	L9	C521	I7	C598	H4	C682	M4	L606	I3	R251	L5	R562	H4	R643	H4	TP221	L8
TP505	C9	C241	L8	C522	I7	C599	H4	C683	L5	L673	L4	R252	K5	R563	H4	R644	L4	TP222	L8
TP506	D9	C242	L7	C523	I7	C5A1	K8	C690	M3	L674	L7	R253	K4	R564	L8	R646	I4	TP223	L9
TP507	D9	C243	L9	C524	I7	C5A2	K9	C691	M3	L690	L4	R254	K4	R565	L8	R649	I4	TP224	K4
TP508	D9	C244	L8	C525	I6	C5A3	H9	C6C0	J3	P5901	H4	R255	K4	R566	L9	R652	I4	TP544	K6
TP510	D9	C245	M9	C526	I6	C5A4	H9	C6C1	J3	Q201	L7	R256	K4	R567	M9	R655	I4	TP545	K6
TP511	D8	C251	L4	C527	I6	C5A5	H9	C6C2	K3	Q202	L7	R257	K4	R568	I9	R656	I3	TP546	K6
TP512	D8	C252	L4	C528	I5	C5A6	H9	C6C3	J3	Q203	M5	R258	K5	R569	I9	R657	I3	TP547	L8
TP513	D8	C253	L5	C529	I6	C5A7	H9	C6W1	G2	Q204	L6	R259	K5	R571	H5	R661	G2	TP548	L8
TP514	D8	C254	L5	C530	J6	C5A8	H9	C6W2	G2	Q205	L6	R201	K4	R572	H5	R662	H2	TP549	J6
TP515	D8	C255	L5	C531	J6	C600	J4	C6W3	H2	Q501	H9	R202	K4	R573	H5	R663	K2	TP550	L9
TP516	D8	C256	L5	C532	J6	C601	J5	C6W4	H2	Q502	H5	R501	K6	R574	H5	R664	H2	TP551	M9
TP517	D8	C257	L5	C533	J5	C602	I3	C6W5	G2	Q503	H5	R502	K6	R575	H5	R665	L2	TP552	K8
TP518	D8	C258	L5	C534	I5	C603	J4	C6W6	G2	Q600	K3	R503	K6	R576	H5	R666	I2	TP553	J8
TP519	D8	C259	L5	C535	J6	C604	J4	CN201	M6	Q601	J2	R504	K7	R577	H5	R670	M3	TP554	I6
TP520	D9	C260	L5	C536	J6	C605	J4	CN202	M7	Q602	I2	R505	J7	R578	I6	R671	M3	TP555	I6
TP521	F9	C261	L5	C537	K6	C606	J4	CN203	L9	Q603	I2	R506	I7	R579	K9	R672	M3	TP557	K6
TP523	C9	C262	L5	C538	K6	C607	J3	CN505	H9	Q604	K2	R507	I6	R580	L9	R673	L3	TP558	J6
TP524	C9	C263	K5	C539	J6	C608	K3	CN601	M3	Q605	K3	R508	I5	R581	L9	R674	M2	TP:ALE	J7
TP526	C9	C264	K5	C540	K6	C609	J3	CN602	M2	Q606	K3	R509	J5	R5A3	H9	R675	M2	TP:MA11	I7
TP528	C9	C265	K5	C541	K6	C610	J3	CN603	M6	Q6C0	J2	R510	I5	R5A7	J9	R690	L3	TP:RFRPO6	
TP530	C9	C266	K5	C542	K6	C611	J3	D600	K2	Q6C1	J2	R511	J6	R5A9	J9	R691	H3	TP:URD#	J8
TP533	C8	C267	K5	C543	J5	C612	J3	D670	K7	Q670	M2	R512	J6	R600	J4	R692	H3	TP:UWR#	J8
TP535	C8	C268	K5	C544	K5	C613	J3	F500	I7	R201	L7	R513	J6	R601	I4	R693	I3	X501	I5
TP537	C8	C269	K5	C545	J5	C614	J3	F600	I5	R202	L7	R514	J6	R602	I5	R694	I3	ZD601	H2
TP539	C8	C270	K5	C554	I8	C615	J3	IC201	K5	R203	L7	R515	I8	R603	I4	R6A0	L2	ZD602	H2
TP540	C8	C271	K5	C555	I8	C616	J3	IC202	L8	R204	M6	R516	I8	R604	I5	R6A1	L2	ZD603	J2
TP541	C8	C272	K5	C556	H8	C617	I3	IC501	J7	R205	L6	R517	I8	R605	K3	R6A2	L2	ZD604	J2
TP542	C8	C273	K5	C557	H8	C618	K4	IC502	H8	R206	L6	R518	I8	R606	J3	R6A3	L2	ZD605	K2
TP559	F5	C274	K4	C558	H8	C619	K3	IC503	H6	R207	L6	R519	I8	R607	J3	R6A4	K2	ZD606	K2
		C276	K4	C559	G8	C620	J3	IC505	J8	R208	L6	R520	I7	R608	J3	R6A5	J2	ZD607	L1
		C277	J4	C560	H7	C621	K3	IC506	H8	R209	M7	R521	I7	R609	J3	R6C0	J3	ZD608	L1
		C278	K4	C561	H7	C622	J3	IC510	I9	R210	L6	R522	I7	R610	J3	R6C1	J3	ZD609	K2
		C279	K4	C562	H5	C623	K3	IC5A1	K9	R211	M8	R523	I9	R611	J3	R6C6	M3	ZD610	K2
		C280	K4	C563	G7	C624	J3	IC5K1	H5	R212	L7	R524	I9	R612	J3	R6C7	M3	ZD611	J2
		C281	L4	C564	H8	C626	I4	IC5K2	H4	R213	L7	R525	I9	R613	J3	R6C8	J2	ZD612	J2
		C282	K5	C565	I9	C627	I4	IC601	J4	R214	L7	R526	H9	R614	J3	R6C9	K2	ZD6T0	M1
		C283	K5	C566	I9	C628	H4	IC602	J3	R215	L7	R527	I9	R615	J3	R6D1	M3	ZD6T1	M1
		C291	L4	C567	I9	C629	H4	IC603	I4	R216	L7	R528	I9	R616	J3	R6T0	M2		
		C292	K6	C568	I9	C630	I4	IC604	H3	R217	M8	R529	I9	R617	J3	R6T1	M1		
		C293	L6	C569	H9	C631	I4	IC605	K8	R218	M8	R532	H5	R618	J3	R6T2	M2		
		C295	J5	C570	H5	C632	I4	J6	I8	R219	L6	R533	H5	R619	K3	R6U0	L2		
		C502	K6	C571	G5	C633	I3	JK601	J1	R220	L6	R534	J8	R620	J3	R6U1	L2		
		C503	K6	C572	H5	C634	H3	JK602	H1	R221	L6	R535	J8	R621	J2	R6U2	L2		
		C504	K6	C573	G5	C635	I3	JK603	M1	R222	L5	R536	H5	R622	J2	R6W1	G2		
		C505	K6	C574	I6	C636	I3	L201	L6	R231	M8	R537	H5	R623	J2	R6W2	G2		

2. KEY P.C.BOARD

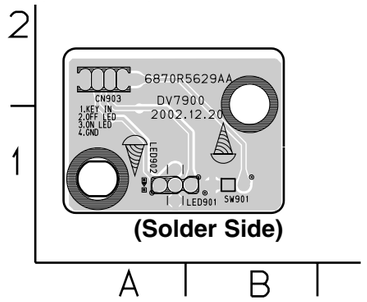
(7 TOOL)



(8 TOOL)

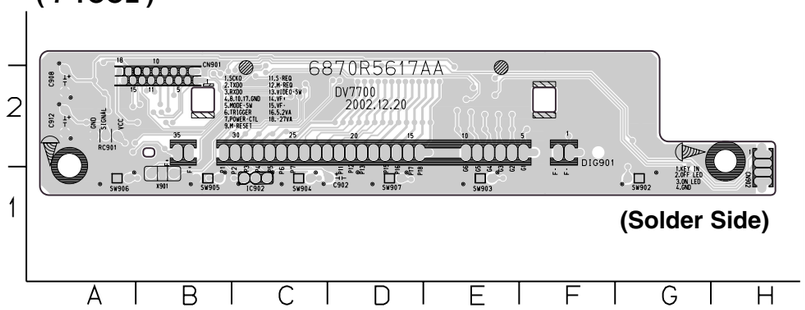


(9 TOOL)



3. TIMER P.C.BOARD

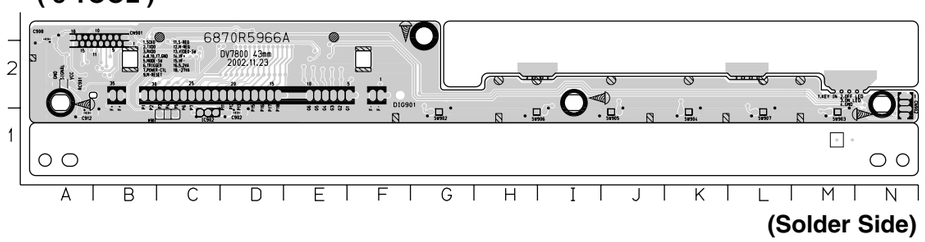
(7 TOOL)



LOCATION GUIDE

C902	D1	Q902	E2	R918	E2	R936	C2
C905	D3	R901	G2	R919	F2	R937	B2
C906	D3	R902	G2	R920	E2	R938	B3
C907	C3	R903	E1	R921	D2	R944	A2
C908	A2	R904	C1	R922	D2	R945	A2
C909	C2	R905	C1	R923	D2	R951	E2
C910	A2	R906	E1	R924	D2	R952	E2
C911	F2	R907	D1	R925	D2	R953	B3
C912	A2	R908	D3	R926	D2	R9S1	G1
C913	B1	R909	D3	R927	D2	RC901	A2
CN901	B2	R910	C1	R928	D2	SW902	G1
CN902	H2	R911	A2	R929	D2	SW903	E1
DIG901	F2	R912	F2	R930	D2	SW904	C1
IC901	C2	R913	F2	R931	D2	SW905	B1
IC902	C1	R914	E2	R932	D2	SW906	A1
L901	A2	R915	E2	R933	C2	SW907	D1
L902	C3	R916	E2	R934	C2	X901	B1
Q901	E2	R917	E2	R935	C2		

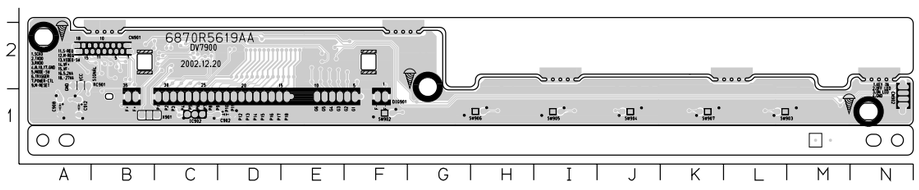
(8 TOOL)



LOCATION GUIDE

C902	D1	Q902	E2	R917	E2	R935	C2
C905	D3	R901	G2	R918	E2	R936	B2
C906	D3	R902	K2	R919	F2	R937	B2
C907	C3	R903	K2	R920	E2	R938	B3
C908	A3	R904	J2	R921	D2	R944	A2
C909	C2	R905	J2	R922	D2	R945	A2
C910	B2	R906	J1	R923	D2	R951	E2
C911	F2	R907	K1	R924	D2	R952	E2
C912	A1	R908	D3	R925	D2	R953	C3
C913	C1	R909	D3	R926	D2	R951	M2
CN901	B2	R910	C1	R927	D2	RC901	A2
CN902	N2	R911	A2	R928	D2	SW902	G1
DIG901	F2	R912	F2	R929	D2	SW903	M1
IC901	C2	R913	F2	R930	D2	SW904	K1
IC902	C1	R914	E2	R931	D2	SW905	J1
L901	A2	R915	E2	R932	D2	SW906	H1
L902	B3	R916	E2	R933	C2	SW907	L1
Q901	E2			R934	C2	X901	C1

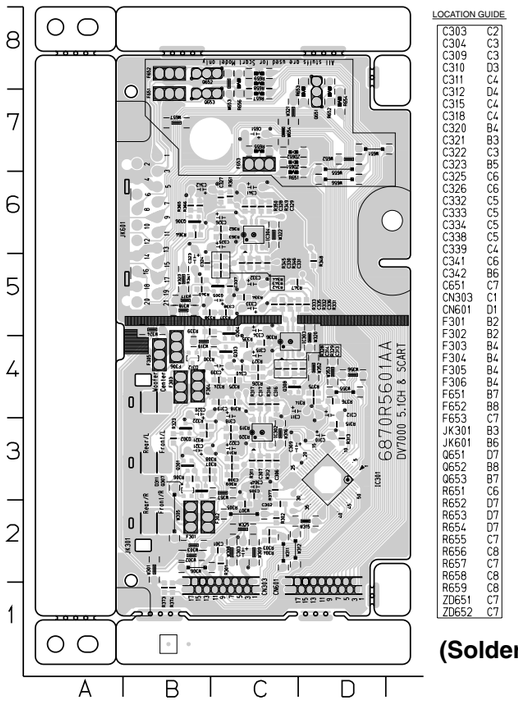
(9 TOOL)



LOCATION GUIDE

C902	B1	Q902	F2	R917	E2	R935	C2
C905	D2	R901	G1	R918	F2	R936	C2
C906	D2	R902	G1	R919	F2	R937	C2
C907	C2	R903	J1	R920	E2	R938	C2
C908	A1	R904	I1	R921	E2	R944	A1
C909	D2	R905	I1	R922	E2	R945	A1
C910	B1	R906	I1	R923	D2	R951	E2
C911	F2	R907	J1	R924	D2	R952	E2
C912	A1	R908	D2	R925	D2	R953	B2
C913	C1	R909	D2	R926	D2	R951	M1
CN901	B2	R910	C1	R927	D2	RC901	A2
CN902	N2	R911	A1	R928	D2	SW902	F1
DIG901	F1	R912	F2	R929	D2	SW903	L1
IC901	C2	R913	F2	R930	D2	SW904	J1
IC902	C1	R914	E2	R931	D2	SW905	I1
L901	A2	R915	E2	R932	D2	SW906	H1
L902	C2	R916	E2	R933	C2	SW907	K1
Q901	F2			R934	C2	X901	B1

4. SCART & 5.1CH P.C.BOARD(OPTIONAL PART)

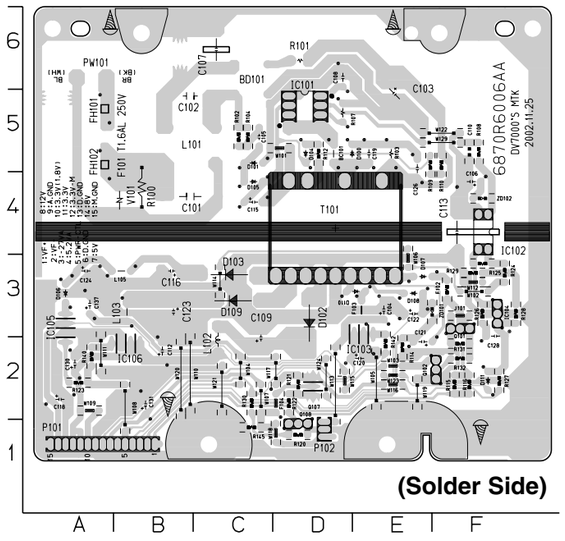


(Solder Side)

LOCATION GUIDE

C303	C2
C304	C3
C309	C3
C310	D3
C311	C4
C312	D4
C315	C4
C318	C4
C320	B4
C321	B3
C322	C3
C323	B5
C325	C6
C326	C6
C332	C5
C333	C5
C334	C5
C338	C5
C339	C4
C341	C6
C342	B6
C651	C7
CN303	C1
CN601	D1
F301	B2
F302	B2
F303	B4
F304	B4
F305	B4
F306	B4
F651	B7
F652	B8
F653	C7
JK301	B3
JK601	B6
Q651	D7
Q652	B8
Q653	B7
R651	C6
R652	D7
R653	D7
R654	D7
R655	C7
R656	C8
R657	C7
R658	C8
R659	C8
ZD651	C7
ZD652	C7

5. POWER P.C.BOARD

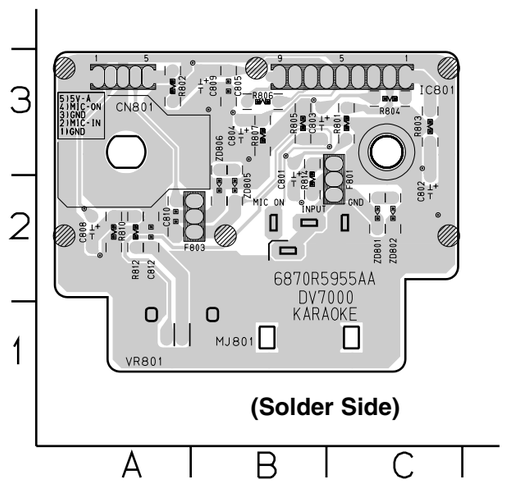


(Solder Side)

LOACTION GUIDE

BC101	D5	D104	D5	R101	D6
BD101	C6	D105	C4	R102	C5
C101	B4	D106	A3	R103	E5
C102	B5	D107	E3	R104	C5
C103	E5	D108	E3	R107	D5
C104	E3	D109	C3	R108	F5
C105	C5	D110	E3	R109	E5
C106	F4	D111	F2	R110	F5
C107	C6	F102	F3	R112	D5
C108	D6	F103	E3	R114	E2
C109	C2	F104	D2	R115	F2
C110	F5	FH101	A5	R116	F2
C112	B2	FH102	A5	R120	D1
C113	F4	IC101	D5	R121	D2
C115	C4	IC102	F4	R122	D2
C116	B3	IC103	D3	R123	A2
C118	A2	IC104	F3	R124	F3
C119	E5	IC105	A3	R125	F3
C120	E2	IC106	B2	R126	F3
C121	E2	J101	F3	R127	F2
C122	E3	L101	B5	R128	G3
C123	B3	L102	C2	R129	F3
C124	A3	L103	B3	R130	C2
C126	E5	L105	B3	R131	F2
C128	F3	P101	B1	R132	F2
C130	A2	P102	D1	R140	A2
C131	B2	PW101	A6	R142	E2
C137	A3	Q101	F3	R145	C1
D100	D5	Q102	F2	T101	D4
D101	C5	Q107	D2	V101	B4
D102	D3	Q108	D1	ZD101	F3
D103	C3	R100	B4	ZD102	F4

6. KARAOKE P.C.BOARD (KARAOKE MODEL ONLY)



(Solder Side)

LOCATION GUIDE

C801	B2
C802	C2
C803	B3
C804	B3
C805	B3
C808	A2
C809	B3
C810	A2
C812	A2
CN801	A3
F801	C2
F803	B2
IC801	C3
MJ801	B2
R801	C3
R802	A3
R803	C3
R804	C3
R805	B3
R806	B3
R807	B3
R810	A2
R812	A2
R814	B2
VR801	A1
ZD801	C2
ZD802	C2
ZD805	B2
ZD806	B2